Vol 3 No 9 September 1986 $3*

A Gareth Powell Magazine

The Australian COMMODORE REVIEW

PROCESSING...

A brief history, reviews of Kwik-Write, Paperback Writer and Superscript, plus Star's NX-10C printer

MicronEye - a digitiser for your C64
Votalker, DFILE 128 & Vorpal
Programmable keypad

NEW AMIGA SECTION

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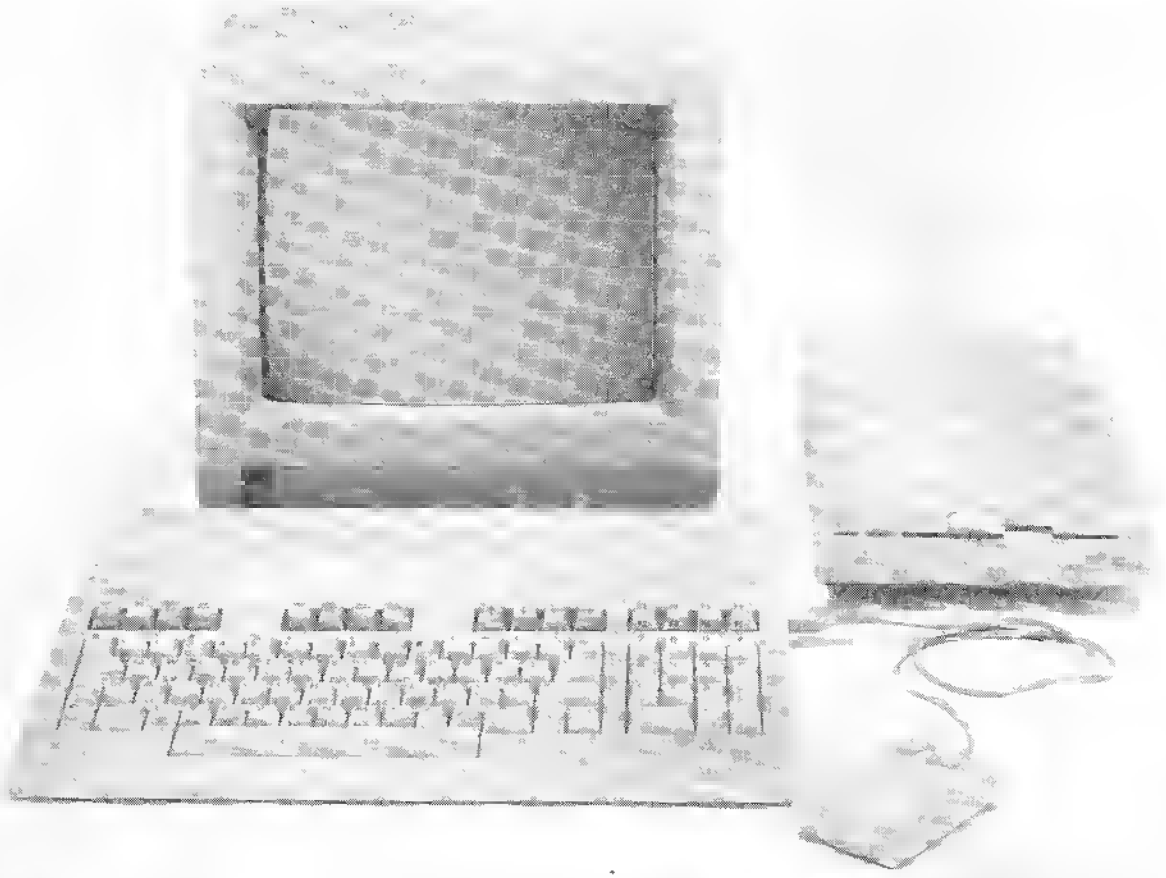

The Commodore 128

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The Commodore 128 will amaze you with its new generation of powerful yet easy to use productivity software. Like 'Jane', which allows you to follow simple symbols instead of typing complicated commands. And because it's so easy to learn, you'll have the 128 working hard in minutes! You get 128K of RAM both 40 and 80 column displays, and 16 colours for graphics.

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Power without the price. $699.

The Australian Commodore Review

Vol 3 No 9 September 1986

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Editorial

Andrew Farrell

It's like being in a hospital operating theatre at times, with bared circuit boards in every corner, staring aimlessly at the ceiling. A morgue of orphaned machines waiting for a reincarnation of sorts - into something bigger and better. It happens now and then, but so many fall by the wayside. I have at last count six machines, none of which have felt the tingle of voltage seeping down their wilting wires for at least a year.

Our last reader survey showed that you too have many machines stashed in cupboards or closets, having seen better days, but now facing starvation and imminent death. It's hard to imagine having a $400 colour TV just wasting away, or $800 worth of music that came out only two months ago just collecting dust on the shelf.

Yet in the computer industry that happens all the time.

All my Apple II (dare I mention that name) disks have long forgotten what was stored on their magnetic surfaces, some have simply fallen to bits - not from over-use.

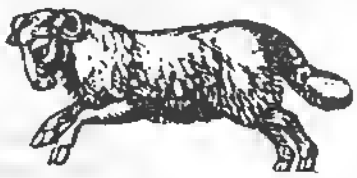
Perhaps there is a way to put all these mementoes to past adventures back to work, helping our latest computer speed up its jobs. A VIC 20 can often make a useful printer spooler. Connect up a centronics interface and your favourite printer. Now add an RS-232 interface and connect up your VIC using that to your 128. All you need is some software to accept information down the RS-232 channel at say, 2400 baud and then throw it into a 16K RAM expander. When all is received, start pumping it back down the serial line to the centronics printer.

It's not such a silly idea. Why don't one of you try it? We can accept contributions on a variety of formats including IBM, Macintosh and Commodore - need I say. So put your ideas for uses of old gear into writing and let's see if our talented technical staff can make them a reality.

Inside this issue is our new Amiga section - a little short at this stage, but we have big plans. There's no telecomputing series, it just wouldn't fit. Instead, there's a new improved adventurer's corner - now called Adventurer's Realm. This column will also appear as a regular feature under the same name in our new magazine, Home Computer GEM.

We also take a look at wordprocessing, its past and future, as well as a taste of a few interesting peripherals such as the amazing Microneye digitiser. Enjoy.

RAM RUMBLINGS



Commodore 128 Sales in excess of 600,000

Australian computer buyers are set to benefit by the extraordinary success of Commodore's new 128 personal computer and the swag of software developers who have joined the bandwagon.

The Commodore 128 has passed 600,000 units in worldwide sales since its release less than a year ago, making it the hottest selling home computer on the market today.

In Australia, the Commodore 128 has achieved sales in excess of 16,000 units since its introduction in November 1985 and continued strong sales are expected in the next 12 month period.

Commodore Australia's National Product Manager, Mr Tony Cuffe said, "Strong demand from the home-business market for a quality machine at a reasonable price has led to the 128's sales success."

One of the 128's big attractions is its ability to run software from three different popular operating systems:

CP/M - which offers hundreds of business and productivity programs.

64 Basic - which features thousands of productivity, educational and recreational packages

C128 - which is attracting a new library of software developed by the leading programmers in the industry.

Mr Tony Cuffe said, "Hundreds of software packages covering a huge range are now available in Australia for 128 users. This has assisted greatly in the 128's acceptance by many Australian families and small businessmen."

Popular 128 software available here include:

Commodore's own software for the 128:

SUPERSCRIPT II: A sophisticated and very powerful professional wordprocessor for use in the office, home, school or wherever quality document preparation is required. May be used in either 40 or 80 column mode and comes complete with a 30,000 word spelling checker, which can be set for either American or British spellings. (Reviewed in this issue.)

SUPERBASE 128: Produced by the same people as *Superscript II, Superbase 128* is a professional database manager that combines easy menu access to all database management functions with complete programmability for more advanced uses. *Superbase 128* can be used in either 40 or 80 column screen formats.

SUPEROFFICE 128: Superbase 128 and *Superscript II* can function independently, or the user can load the two programs together to take advantage of the full 128K of the computer's memory. In this innovative design, the two programs then link up to form a complete office system known as *Superoffice 128* that allows users to link database files directly to word processed documents.

SWIFT: A Multiplan type product, *Swift* is a very easy to use electronic spreadsheet designed for business, education and the home. *Swift* utilises the 128's 80 column colour mode and incorporates pop-up menus.

JANE: Developed for your word processing, spreadsheet and filing needs. By selecting from an assortment of easy-to-understand pictures, known as icons, at the top of each screen, *Jane* eliminates the need to become familiar with complicated computer commands. Simply select the function you desire to work with and begin. Designed for the school and the home. (Reviewed in *Commodore Review* July issue.)

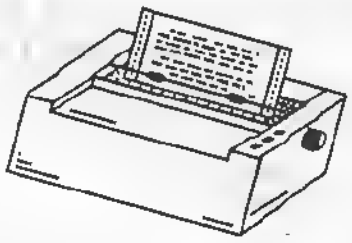
DATA MANAGER 128: A complete general information storage and retrieval system with report writing, graphics, statistics, and label making capabilities.

Other 128 software available in Australia:

OziSoft	Imagineering
Island Caper	Microswift
Infiltrator	Word Writer
Boulderdash	Data Manager
Callosus Chess	Swiftcalc
Who Dares Wins II	Micro Illustrator
Battle of Midway	Hands on CP/M Plus
Frankie Goes to Hollywood	The Very First
Strip Poker	Paperpak Writer
F-15 Strike Eagle	Paperpak Planner
Reach for the Stars	Paperpak Filer
Steve Davis Snooker	Trinity

Update: Olympia Printers

by Paul Blair



For a few weeks now, reports have been drifting in to me about paper jam problems with a recent batch of the very popufar Olympia NP165 dot matrix printer. Matters came to a head when the Canberra PC Users Group magazine, "Sixteen Bits", ran a couple of notes on the subject. The latest note is reproduced below, with the kind permission of its author.

The Olympia is a "push feed" printer, as are many printers today. Paper is drawn in over a pair of sprockets, then pushed around a roller to the front, where the print head leaves its marks. There are various mechanical doo-dads to make sure that the paper flows evenly. Some other printers use a "pull feed", where the sprockets pull the paper past the print head. This type of mechanism is very positive, but has been abandoned largely because the first sheet of paper is usually wasted every time you start a new print job. For numbered invoices and such business type applications, this causes problems. Hence the push feed designs.

The paper jam problem seems to come from three principal sources. The IBM magazine article mentions the smoothing of the follower wheels, reducing the strength of the paper pushing action. The other problem is the paper bail, the little bar that rests against the paper to keep it nice and ffat on the roller. There are three little rollers on the bail, plus a ruler to let you workout printing formats. The leading edge of the rufer can rub against the paper because the three little rollers are not thick enough. If the ruler edge is a bit uneven, the bends in continuous paper get caught and jerk the paper sufficiently to make the top lines on the next page print unevenly.

A phone call to Olympia got a rather excited man who said that the "fix" was to cfean the main roller carefully and often end, oh yes, get your dealer to remove the mylar guide that is behind and below the main roller. That did sound like good edvice, so now we knew the three sources of problems.

That's all I know for now. My Olympia has gone back to the ever helpful folk at the Churches Centre for some repair work. I'll let you know how it all pans out. Meantime, if you are having problems, send a note to our Editor so we can all keep inlormed.

Return to Olympia

(or how to get out of the jam).

Geoff Cadogan-Cowper

Cedric Bear put some comments in the May issue (Commodore Magazine) regarding the Olympia and its practice of constantly choking on paper once it had some use. I have not had my Olympia modified by the mylar guide beneath the roller but have cured it of paper jams. The modification has been passed on the Olympia and I expect it to be implemented in the next production batch. In the meantime, others of the Group who have purchased what is a truly excellent printer may wish to know the modification just in case.

There are two "follower" wheels on the shaft driving the traction sprockets. These provide support to the paper BUT - what appears to have been overlooked in manufacture is that they also provide the only direct pulling essistance to the paper within the tear off margins. In most other printers they are made of rubber and provide some driving friction to the paper. The Olympia with which we have had trouble has them made of hard plastic which polishes with use and then provides no assistance. So the printer then works fine on single sheet, roller-driven feed but on tractor feed tends to jerk the margins free of the dragging paper and then jam solid.

The fix I used was to lightly coat the wheels' surface with super-glue (using e cotton bud) and when this had dried, apply (again with a cotton bud) a thin layer of silicone rubber of the type you buy at the "Selley's Bar" at the hardware store. (But please only use the neutraf cure version - concentrated acetic acid is not ideal in your printer!)

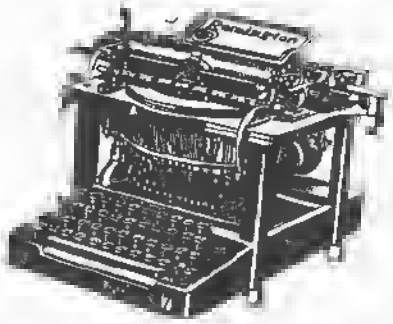
The fix works. One jam since in over a thousand pages of printing.

I understand that three changes are being implemented to the Olympia to prevent this problem recurring. Initially it appears their service people were bereft of answers and machines sat around while they tried to work it out. Those of you who haven't had the problem will be relieved to know that now the lixes are understood it is a same-day, werranty job with no hassles.

Wordprocessing

A brief history

by Sian Powell



In the beginning there was paper. Monks used to script beautiful texts onto creamy parchment with the help of scratchy quill pens. Cloistered in their bare little cells, they produced great works of art.

These illuminated manuscripts, although absolutely beautiful to look at, were a little less than satisfactory at disseminating information. They took days and weeks to script and hours to read. It didn't matter all that much in those days, because not too many people could read.

As the world progressed though, speed and ease of reading and writing became of paramount importance. The typewriter, when it finally arrived, certainly revolutionised communications. Although, to look et the first prototypes of typewriting machines, it's hard to believe. They were huge, clumsy, cumbersome objects. The secretaries of those days had to have wrists like heavyweight boxers to actually make the keys strike the paper.

Amezingly enough, typiste did get the swing of producing copy from the iron monstrosities - in fact, elmost too well. They began to type too quickly, and the keys developed a tendency to jam in horrible iron tangles. Finally, e keyboard configuration was developed to slow the typists down. It was the most difficult arrangement of keys that could be devised. This keyboard layout is still with us today, in the age of electronic marvels. The qwerty system is still used on the most sophisticated of computers, just as it was on the early typewriting machines.

Typewriters have had their heyday, and sadly they're on the way out. They have been replaced with the shining advance guard of this brave new world of communications - the word processor. It wasn't even a fight. The typewriter is disappearing gracefully away from offices. The odd machine is still hanging around for old time's sake, or to address the occasional envelope - but the spirit is fading fast.

At first the typewriter companies, with huge investments to protect, developed half-breed computer/typewriters, which were basically not much more than your average, ordinary typewriter with a small LCD screen for copy preview. Sometimes they even had a small rudimentary memory. But these machines had the inexorable march of progress against them, and soon they too began to slip slowly into the swamp of obsolescence. The typewriter companies very sensibly began to develop word processors and computers. Companies like IBM, Commodore, Wang, Olivetti and Brother saw the light and sank huge sums of money in communications research and development.

It's not hard to see why. Word processing has it all over typing like a sheet of continuous paper. The advantages of word processing are multitudinous and the disadvantages minor to non-exlstent. The first word processors were large, and by today's standards, rather slow. They were dedicated word processors, which basically means they didn't do anything except word processing. They had all the functions of the modern word processing program which runs on personal computers, but less versatility.

And of course, you can't use a dedicated word processor to work out spreadsheets, play games, organise a database, balance your chequebook or learn to speak Itelian. But even these early dedicated word processors enjoyed a huge measure of popularity, basically because they were so efficient and economical compared to typewriters.

Firstly, word processing uses so much less paper. This may seem fairly unimportant to non-Greenies, but it has a direct correlation with time and convenience. Instead of furiously tearing the sheet of paper from the roller, squashing into a ball and tossing into the nearest wastepaper basket when you make a mistake typing, word processors allow you to coolly cursor back to the error, correct it, and continue merrily on your way without turning a hair. Instead of innumerable drafts, covered with scribbled corrections, the first piece of hard copy is nearly always the last.

Word processing has other huge advantages - the ability to move blocks of text around saves on time, effort and frustration. White-out and carbon paper collect dust and cobwebs, shoved right to the back of the word processor operator's desk. And the sheer portability of word-processed documents is a luxury. Just tuck a couple of disks into a breast pocket and stroll casually out of the office.

This is not to say that word processors are the be-all and end-all of the communications revolution. They have the odd quirk and idiosyncracy just to keep the user on his toes. For instance, the uncanny ability to lose information from disks. They always seem to choose the exact moment when you have lovingly put the finishing touches to e much laboured over piece of writing, escape to save, and Blammo! All gone, vanished into that twilight zone of wordprocessor fatalities. It happened to this erticle, which nearly made me turn in my journalist's card and take up something less hazardous to my peace of mind, like bomb defusing. Of course, these disasters can be prevented with a simple and effective measure. Always back-up, on another disk, everything you write. Otherwise you continually run the risk of tears before teatime.

The other handy dandy thing about modern word processing programs is they often have dictionaries and thesauruses built in. Or at the very least, the hook-up is there for these references should you wish to buy the separate programs. These computer aided dictionaries are amazing things. In these days of modern education, it's horrendous how

many kids can't spell for peanuts. They're excellent at reducing modern classics to newspaper headlines, but i before e is totally beyond them.

A dictionary program will run through a document typed in by one of these spelling incompetents and stop at every single misspelled word. You then have the choice of ignoring the computer and progressing to the next word, or correcting the mistake, or adding the word to the dictionary. In this way you can build up a mini-dictionary of words peculiar to your trade or profession, and in the future the computer will skim past them, unless of course, they are misspelled.

Some programs will even guess at the word you are trying to spell and offer you a choice of correctly spelt alternatives. Dictionary programs will often let you know exactly how many words you have typed, which is a blessing for journalists and other poor fools who have to write to length.

The thesaurus program is a fairly new innovation, and works in exactly the same way as your well-thumbed paperback. Now that elusive word that was on the tip of your tongue is rapidly available on the tip of a chip!

Secretaries should really get down on their knees and worship the inventors of modern word processing programs. Not only have they been saved tons of work, it's the most boring work. Typing the same old letter over and over again would drive a saint to distraction. Now secretaries can type in the prototype letter, and on a separate document a list of names and addresses, go away and have a cup of tea and chat, and leave the computer chortling to itself.

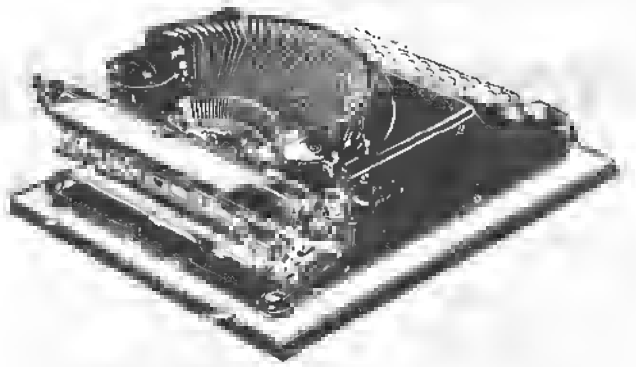
In a remarkably short space of time they will have the required number of personalised letters. Unfortunately, this mail merging facility of word processing programs is not infallible. I have seen beautifully presented letters, with a neat 'Dear Dapto. 2250'. This can be a bit disconcerting, but once you have the hang of mail-merge, you'll never go back to laborious typing.

Of course, the finished word processed product depends entirely on the print formatting capability of your word processing program and the quality of your printer. There are numerous printers available, from cheap little dot matrixes that do the job quickly and legibly, but without much class, to expensive daisy wheel printers that are slow and noisy, but produce beautiful, letter quality type. The new laser printers seem to combine the best of both worlds. They are speedy, relatively quiet and produce nice type. Unfortunately, they are also very expensive.

The choice depends entirely on your needs. If the hard copy is destined to be read only by you and your colleagues, a dot matrix printer is more than adequate. If, on the other hand, you are sending letters to potential clients - a laser or daisy wheel printer may be needed to make the correct impression.

Even the most elementary of word processing programs allow you to choose how you want your finished hard copy to look. Most word processing programs have at least some of the following options available:

Justified type. This means that you can format the page so the lines begin and end exactly at the left and right margins. The computer adds the correct amount of space between words to allow this to happen. Many books and magazines use justified type, it can look very professional. This article, for instance, is set in justified type. It only works well with fairly wide sections of type, though. Set in columns too narrow, justified type can look very strange.



Flush left, ragged right. This is the ordinary way of formatting a page. It results in an even line down the left hand side of the page, and the lines ending within a right margin, but not evenly. Flush left, ragged right is basically what you get from an ordinary typewriter.

Bold and italics type. Simple commands in the word processing program will allow you to nominate certain pieces of copy that you wish to be bold or italics. It is a neat way of emphasising a word or sentence, and looks far more professional than underlining, although you can of course underline should you want to.

Subscripts and superscripts. These are the little numerals or characters that appear slightly above or below the line of type. They are often used in academic documents, and are simple to employ with a word processing program.

Variable pitches. Changing pitch means you can alter the way the type looks. You can make the type condensed or with more space around the letters, depending on what is required.

Headers and footers. These are the explanatory lines at the top and bottom of pages. Again, they are often used in academic treatises, or in newsletters. The computer, formatted correctly, will automatically enter headers and footers on every page of the document.

Fonts. A font is a particular type style. Serif fonts have the little squiggly bits on the letters, and sans serif fonts are more modern characters without serifs. Some word processing programs will allow you to choose the font style.

With all these commands at your fingertips, you can do just about anything with your pages. You can produce a slick piece of finished copy, a professional letter, or a long, legible article. The permutations are endless.

As are the number of word processing programs available. Anything which so conveniently and efficiently fills a gaping void is bound to have hundreds of variables available. For the Commodore computers alone there are a number of programs. In general, it is fair to say that the more features a word processing program has, the more expensive it will be. The program you choose will depend entirely on your needs and the state of your finances.

*This month we take a look at two of the fray, both of which have something special to offer. **Kwik·Write**, a new entry to the market place, is exceptionally inexpensive, whilst still offering many of the features found on far more expensive packages. **Super Script** is a step up from the very popular Easy Script, operating on both the Commodore 64 and 128 in 80 column mode. Whilst Pocket Writer, also known as Paper Back Writer, fits the bill as a more proffessional answer. Next month we will be covering several other names, as well as comparing all who show their face in an all out showdown. - Ed.*

KWIK-WRITE!
big on features, low on price

In which J.MARK HUNTER explores our editor's morning eating habits, and is fascinated with a new-fangled wordprocessor called Kwik-Write.

The quality and intelligence level of this magazine is of course determined by the editor and his staff of writers. Their brains and brainwaves are in turn determined by the condition of servicing received and elements subjected to.

As I type this my keyboard is littered with shrapnelled units of Kellogg's Honey Smacks spilled over from the rim of a white plastic coffee cup as they are being furiously shovelled to my editor's mouth. This madness is accompanied by the sound of the new Bannanarama number.

The reason for this disinteresting and subnourishing breakfast is the rush for a deadline and tears of Sydney's horrific morning peak-hour traffic jams.

But fear not, friends, the Hunter had it covered from 7 am with natural muesli and Steely Dan.

What is *Kwik-Write*? In fact, why is there air?

Kwik-Write is a revolutionary full-featured word processor for the Commodore 64 computer that delivers the quality and power of dedicated word processors at an affordable price.

To use *Kwik-Write* you need a Commodore 64 or Executive 64, a 1541 Disk Drive, a monitor and electricity. A printer is optional, though highly recommended, as is electricity.

Make sure that you put a write-protect tab on your *Kwik-Write* disk before you use it. And remember this one, because I'm going to remember it for the rest of my life - do not save documents on the *KW* disk. And even though I read the manual and that sentence did register in my brain cells, I played with fire and did it anyway, and man oh man did I get burned. Lost my whole review from smug bravado. Not cool. Save documents only on a separate formatted disk. The only time you should remove the write protect tab is if you want to store a new configuration to disk from the OPTIONS menu.

The MAIN MENU

The main menu is the central command point from which you instruct *Kwik-Write* to manipulate your documents: load, save, create, edit and print. You also display disk directories and access the Kwik-DOS menu via the Main Menu.

After using an *Easyscript* word processor I immediately noticed the great differences between the two programs. One of the features on *Kwik-Write* which is similar to the old *Perfect Writer* is that when you are writing along and get to the end of the line it automatically moves any words which wrap around to a new line, stopping any nasty split words.

Deleting and inserting are simple, with a variety of methods and variations available by single or two key press commands.

One thing that I do not like, more than one, actually, is that compared to say *Easyscript* where at the top of the screen is the command line and at the bottom a status line, this has none of any significance.

You never know how many lines you've done or how many characters you've typed. It's conjecture until you switch to another mode.

File saving and loading is quick and painless. Both are accessed from the main menu. One thing that is a bit of a worry is that the program does not check to see if a file already exists but just erases anything by the same name.

One other likable feature on *Kwik-Write* is the joystick mode that allows you to move the cursor throughout the document with a joystick plugged into port one. It will move in the direction of the stick and pressing the fire button will move through the document one word at a time.

Other features include a search and replace function, allowing you to search through a document for the occurrence of a phrase with the option of replacing it with another, one paragraph at a time. You may also select from any of the sixteen border background and character colours - adjust to suit your own breakfast bowl colour scheme. If you save an OPTIONS configuration to disk, *KW* will also store the colours you were last using, along with any of four possible fonts which may be used to edit text in.

Boasting loading and saving time as being 300% faster, *Kwik-Write* is a competitive full-featured disk attractively priced at just $35.95, and complete with a comprehensive easy to follow manual.

For that kind of money you just cannot go wrong.

Distributed by Pactronics, (02) 73 4879.

The MAIN MENU will be displayed when KWIK-WRITE! has been loaded:

MENU

L-LOAD FILE	C-CREATE FILE
S-SAVE FILE	E-EDIT FILE
D-DIRECTORY	O-OPTION
K-KWIK-DOS!	P-PRINT FILE

SELECT

NOTE: To return to the MAIN MENU from any other place in KWIK-WRITE!, press f1.

Superscript™

reviewed by K J McCoy

My Commodore 128D has been a continued source of pleasure and amazement since I brought it home. After three years of happy computing on my trusty 64 the flexibility of the 128 and the power of software available for it have more than made up for the plunge.

However, it is with *Superscript* that the greatest source of pleasure has come.

I do a lot of writing and have used *Easyscript* constantly, always being very satisfied with its capabilities. Sure, there were a few niggling things, like the cumbersome way it handles format and print commands or the limitations of not really knowing what your page was going to look like until it was printed - boy, has some paper been wasted! I even tried a few others with super duper features but always came back to *Easyscript*. Therefore, getting another word processor and spending all that money on one was not undertaken lightly.

Superscript is not just a mere update of *Easyscript* although it does come from the same stable. It is a word processor geared to all levels of users, although I suspect that those who are just dicovering the world of word processing may find this a daunting program.

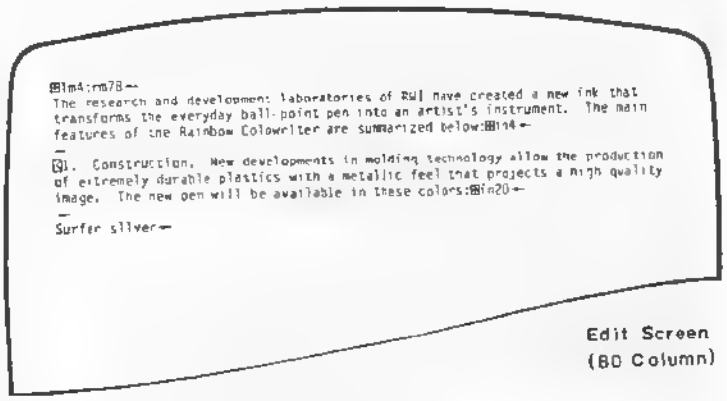
The *Superscript* manual is comprehensive and leads the user through logical tutorials which demonstrate the power and versatility of this package. Easy reference pages clearly provide all of the information needed to get the system up and running. One point, however, that I do miss, is a quick reference card like they supplied with *Easyscript*.

A programmable word processor

Setting up, formatting and control commands in any word processor can be a royal pain. With *Easyscript* the ASCII commands had to be preset for every document as well as the print commands. Of course I used to have these already listed on each disk labelled "Format" and loaded that first before getting on with my writing. *Superscript* has done away with that by using its DEFAULTS file which sets up the printer and the formatting at the beginning of each work disk.

The big thing about *Superscript* is that it is a programmable word processor. That is, you can set up your work disks in such a way as to provide single key stroke commands for those features which you use most often. You can even program commonly used phrases, names, addresses etc. etc. so that it wil be typed up on the screen at a single key stroke, if you don't count the ESCAPE or RUN/STOP key which you hit first to access the command keys.

Every key on the keyboard can be programmed with a command sequence or with phrases and even the shifted keys provide more! You make your own selection and tailor the program to your needs. These commands can be permanently stored on the DEFAULTS file which the program reads on booting your work disks. You can even have a different



Edit Screen
(80 Column)

DEFAULTS file on each disk to serve different purposes. Using the DEFAULTS parameters is the fastest means of operating commands.

If the thought of programming daunts you *Superscript* can be operated from a menu line which is always hiding at the top of the screen. By hitting F1 the MENU appears and from that your selections can be made either by using the cursor (slow) or by using abbreviated first letter commands (faster).

Also the function keys have been pre-programmed for common functions like LOAD, FILE etc. An excellent feature when you access the DOCUMENT option to load files is when the space bar is pressed all of the files are listed and by simply moving the cursor over the desired file and pressing return it loads automatically.

Features galore

Superscript is loaded with other features that I didn't even know I was missing. Like the five function calculator which enable you to set up a broadsheet or it can be used independently of your current document (to perform calculations which young Freddy needs to check his homework while you are busy writing the Great Australian Novel!). There is even a facility to change the colours for any of six areas of the screen by putting the proper commands in the DEFAULTS file.

Editing can be done in any width of your screen (40 or 80 columns) up to 240 columns. The 64 version gives you 500 lines at

40 columns while the 128 version gives you 999 in 40 column mode or 726 in 80 column mode. An interesting feature in the 128 version is that there are two text areas. The second area is 509 lines long in 40 column mode and 254 lines long in 80 column mode. This second text area can be used to edit two documents concurrently but most usually it will be used to load *Superbase 128* which can live in memory beside *Superscript 128*. This combination makes a very powerful integrated package which many small business users may find very attractive.

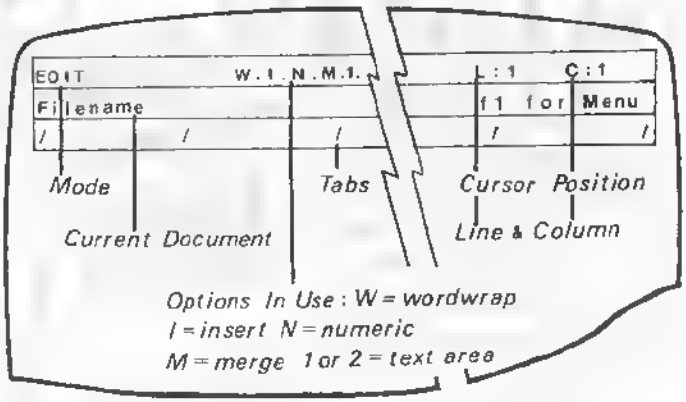
Editing can be done in either INSERT mode which pushes the text over to the right as you type or in OVERSTRIKE mode which overtypes as you go. You can edit with wordwrap ON or OFF. I never turn wordwrap off now - after years of saying that it didn't worry me about words doing funny things at the ends of lines it is sheer pleasure to be able to read quickly and naturally. With wordwrap OFF though lists and table are easier to line up. You can toggle between these two settings to your heart's content.

All of the usual features you would expect with a good word processor are present in *Superscript*. There is a powerful SEARCH command which will hunt out any word or phrase either by exact match or by partial match and ignoring upper/lower case difference, forward or backward through your writing. SEARCH and REPLACE allows words or phrases to be replaced extremely quickly. There are cut and paste options accessible in the AREA menu.

In addition to moving blocks of text very easily, blocks can be saved to disk as a standard file to be retrieved later through the DOCUMENT menu. This last menu allows access to disk utilities such as the ability to append information to existing files on the disk.

The spelling checker included with Superscript is accessed from the DOCUMENT menu and after *Easyspell* must be the best thing since sliced bread. It is easy and it is fast. The document in memory is checked and doesn't have to be reloaded! Statistics regarding your document are flashed up first on the screen and can be examined while the speed reader checks your document. Words not found in the dictionary (British spelling too) are highlighted immediately in alphabetical order in the text and you have the option to accept, edit, ignore or learn the word. It is fast and simple to use and about a zillion times faster than *Easyspell!!*

The PRINT menu allows you to view the document on screen exactly as it will appear in print. Of course it is easier with an 80 column screen as with standard size letters etc. the whole document does not have to be scrolled over to view it. The PRINT menu also supports linking files so that you virtually have an unlimited document length provided you swap disks. Also you can print in odd and even pages, from a specific page number or from a predetermined position.



Do I dare whinge?

I am still learning about the versatility of this program. I have had some experience also with *Wordstar* and am now convinced that it is a cumbersome dinosaur by comparison. Sure, *Superscript* has a couple of things which some may find upsetting. If you use the 80 column screen, as I do, you may find that the cursor disappears as you move it across or down the screen, only giving off an intermittent glimmer as it glides along. It can and does get lost behaving like that.

It will not support printing from a cursor position. I could use that facility to cure that maddening printer aberration which sometimes happens like going crazy on the last page of a ten page document so that the whole lot has to be printed from the start instead of from the given cursor position. I would like to see it have page markers to avoid those orphan words or lines left hanging at the end or beginning of a page. Inevitably, when I have internal headings they will appear on the last line of a page and the text resumes on the next, definitely not a nice habit.

The last small criticism which I have is that it does not have a buffer to store erased text so that if some horrendous error has been made it can be retrieved! I suppose the beeps which it does give out at crucial moments and the stop and reconsider allowance it makes on erasing should be enough to stop crass acts of premeditated stupidity.

Final Analysis

Despite the small criticisms which I have made, and they are minor, I think that any professional writer, would-be author, university student, teacher, letter writer, business man or even school pupil should have a tool like this at their disposal. It lives up to its name and is definitely a worthy successor to that great little workhorse *Easyscript*. It is a powerful word processor and even 64 owners will love its features. With the 128 I would place it above many word processors which sell for six times the price and that includes *Wordstar*.

Computer: Commodore 128 and 64
Publisher: Precision Software, Surrey, England
Distributed by: Commodore Australia

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Incorporates Centronics Printer software (user port) with CBM graphics capability. See "Commodore Connexion" for suitable lead.
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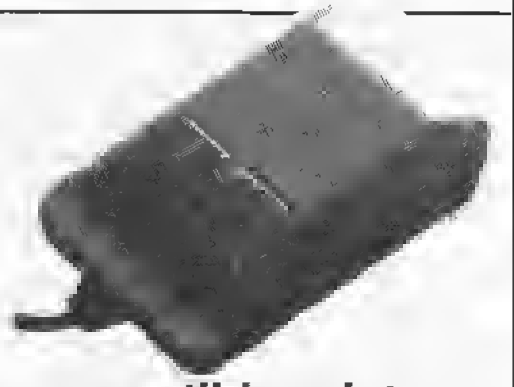

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Paperback Writer 128

Reviewed by Phil Campbell

I have now been using *Paperback Writer* for around three months, and I am thoroughly impressed. This program offers all the features that you really need, is simple to use, and is amazingly inexpensive. Best of all, what you see on the screen is what you get on the paper. After three months road testing, I can hardly find anything to complain about. This may become a very short review!

If you are looking for a capable and affordable wordprocessing package, *Paperback Writer* should be at the top of your list.

Pricing

The selling price of *Paperback Writer* is worthy of comment. My copy of the program was imported from the United States, where it is known as *Pocket Writer*. I ordered it from an American software discounter, selling at well below the American recommended retail price of US$59. The well known plight of our Australian dollar hit hard at this point, with a Mastercard bill of somewhere around $100. Mind you, I still thought it was a bargain at this price.

A friend of mine was so impressed that he decided to order a copy direct from the Canadian distributors, Digital Solutions. This time, the retail price was $69 Canadian. The Mastercard bill has not yet arrived, but I guess that once exchange rates have all been calculated he will be paying a lot more than a hundred Aussie bucks. He still thinks it's a bargain.

So why am I telling you all this? Simply because Imagineering are taking the unprecedented step of selling *Paperback Writer* for $80. All I can say is that they must have done a great deal with Digital Solutions in Canada. At this price, *Paperback Writer* deserves to sell like hot cakes.

One Two Three Testing...

Paperback Writer arrives in a neat and strong plastic case, together with a small but comprehensive manual. The aim of the programmers was to make the manual redundant with a comprehensive HELP system on screen. They succeeded. However, the 56 page manual is well written and well indexed - and importantly, it offers clear examples of most functions.

Being easily impressed and in a positive frame of mind, I was immediately hooked by the fact that my copy of the program was on one of those nice new grey Polaroid disks with the nifty 'gold re-inforced hubs'. Here I go in Diana Fisher mode again! (... and is it safe for the children?) Seriously, though, it does seem like a quality diskette. Unfortunately, later copies seem to be on stock standard boring old black disks, and it will of course be up to Imagineering to use whatever brand they like.

Loading the program takes only around 25 seconds, thanks to a fast load system incorporated on the disk. 801/1525, 802/1526, EPSON, JUKI 1101/6000, PROWRITER.PF, GEMINI/10, SPIRIT-80, OKIMATE 10, OKIDATA 120 and OLYMPIA printers are supported on the program disk. Customising a printer file to suit your own rare and exotic printer is quite simple. The manual is quite explicit, and the printer file format is excellent in that it will accept control codes in decimal or hexadecimal, or even as ASCII characters.

No more tedious conversions as you ferret through your badly written Japanese printer manuals! A menu of printer types appears after the program has loaded. Select your printer, wait a moment while the printer file loads, and you are ready to write.

Seven lines at the top of the screen are allocated to status and 'Help' information. In EDIT mode, the information area displays the functions available if the "C=" key is pressed, gives a reminder that text formatting options are accessed by the "ESC" key, and suggests pressing the "HELP" key for more detailed help.

Once you gain confidence with the program, you can regain the use of the "Help" area of the screen by pressing "CTRL H". The highlighted block disappears, and considerably more of your text can be seen on the screen.

Text formatting, such as justification, margin setting and spacing are all selected from a menu accessed through the ESC key. A table of 27 options is presented, and I can't think of anything that is missing.

Underlining, bold face, italics, superscripts and subscripts are all selected by a CONTROL key combination: for example, boldface is selected by pressing CONTROL B, with the cursor at the beginning of the text to be emphasised. Move the cursor to the end of the section of text, and press the same keys to toggle the function ott.

It is in this area that *Paperback Writer* excels, for the program offers genuine WOTSIWHTP. Yep, you guessed it - What's On The Screen Is What Hits The Paper. In other more mundane circles, this is called WYSIWYG.

This is now considered to be trite and old fashioned. Anyhow, even the subscripts and superscripts, even the underlining and boldface, even the italics, even - note this - even the French characters with their circumflexes, graves and acutes appear on the screen exactly as they will appear on the paper. Hey, how about WOTSIPOP? What's On The Screen Is Printed On Paper... you can even pronounce it. Back to work. There are two minor problems at this point.

Firstly, just imagine that you are underlining the heading of your fabulous essay on Early Neolithic Sociological

Interaction. It looks really daggy if the spaces between the words are not underlined. At this point, the screen lies, because it shows both words and spaces underlined. They aint. It is necessary to redefine a character as the "underline" and insert it in all the gaps.

The second problem has nothing to do with the program. It depends on the monitor you will be using. I am using a Thomson amber screen, which is terrific - a nice clear 80 column display with plenty of contrast. Contrast is the key issue here, for I have noticed that on some monitors, the contrast is insufficient for the highlighted bold face text to stand out on the screen. Even worse, the highlighted cursor on the text formatting menu is almost indistinguishable.

Those of you who are rich enough to afford an 80 column colour monitor can relax and enjoy yourselves. Those of you who buy the program then find you have problems can use the money you saved by not buying *Superscript* to get a new monitor.

Verdict

Time is short, and my deadline is drawing near, so I will rush over a few other important features. Like most wordprocessors for the 128, *Paperback Writer* allows text memory to be split so that two documents can be in memory at once. Anyone who works on essays which require footnotes will find this a great help, as the footnotes can be kept in the alternate section of memory and updated as required, simply by pressing the ALT key.

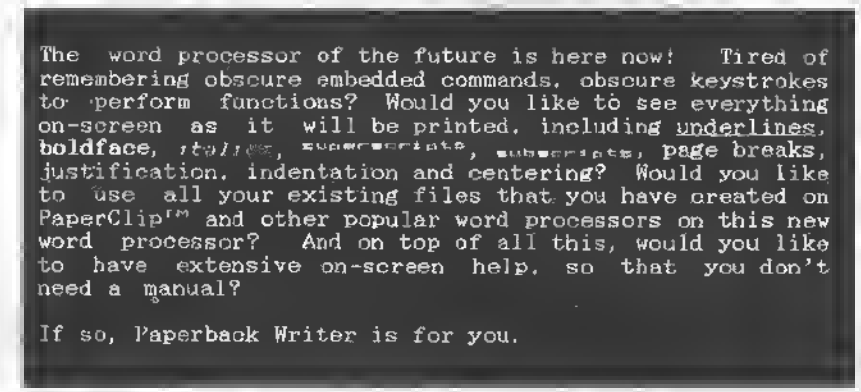
Another useful feature is the ability to read and write Sequential and Program files.

Hence, it is possible to load files from *PaperClip*, *WordPro*, and *EasyScript* (and probably *Bank Street Writer*), a feature that I have found quite convenient. Naturally, formatting controls will have to be reinserted, but this is a minor hassle.

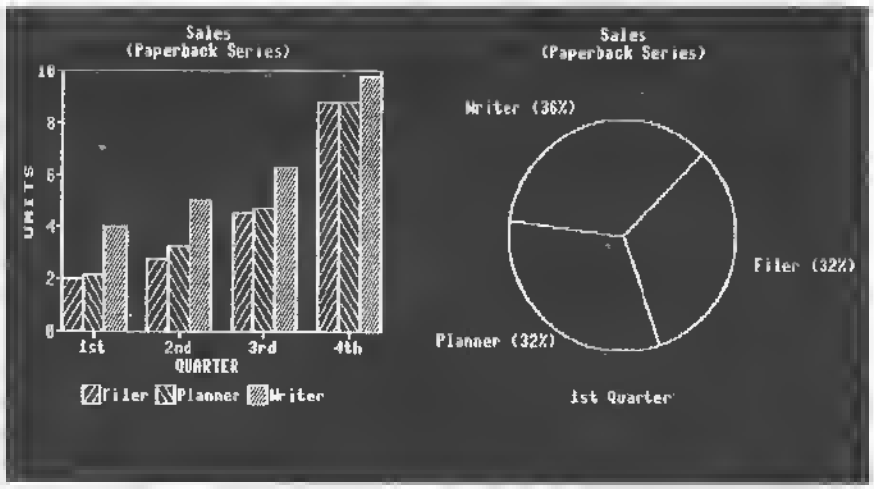
Another nice feature is the ability to alphabetically sort a list by highlighting the area to be sorted and pressing "CTRL S". A similar function allows the addition of rows or columns of numbers. Both functions can be very useful.

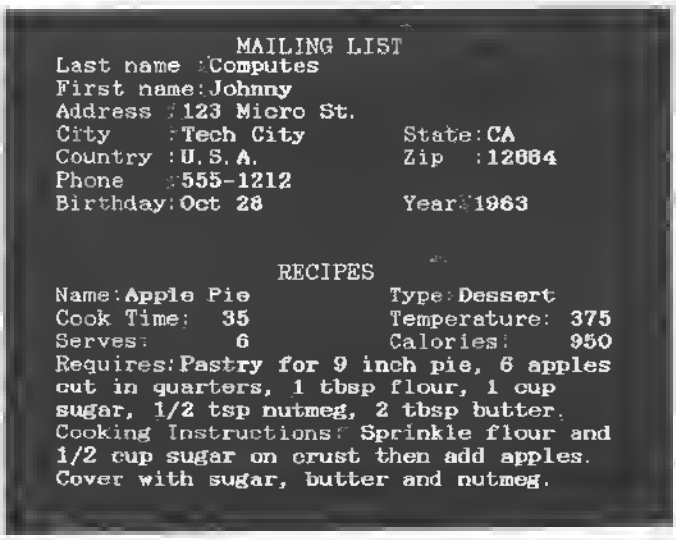
All the usual search and replace functions are available - in fact, I cannot think of any area in which *Paperback Writer* is lacking. In terms of price and performance, presentation and ease of use, I give *Paperback Writer* my unreserved commendation.

Distributed by Imagineering, RRP $79.00.

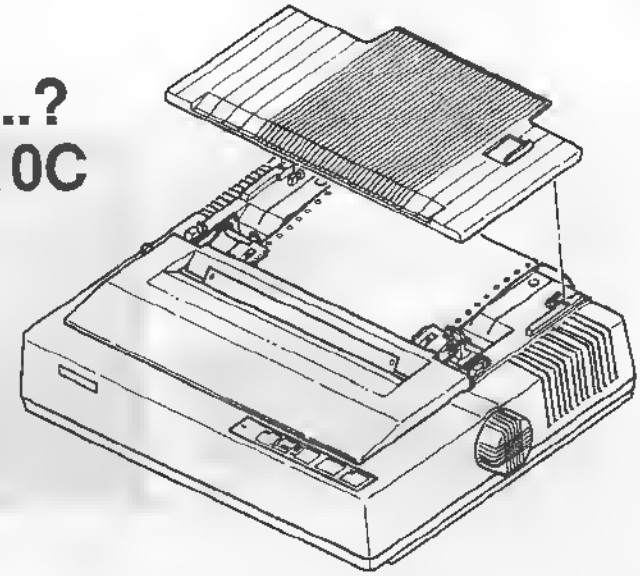


Also available for the Commodore 64 or 128 to go with Paperback Writer are Paperback Planner, a spreadsheet that makes fast work of budgeting and forecasting and Paperback Filer, a database manager.





And how should I print it..? Star NX-10C



by J.Mark Hunter

Last month we included a selection of printer reviews, well, here's one more.

Manufacturers of high-fech products cannot, in any circumstances, afford to loose inferior units onto the market if they wanf any piece of it. We know that. That is why fhe phrase "much of a muchness" comes into play with regard to basic components of hardware. In the computer industry printers are like toasters - they all do the same job, it just depends what kind of metal packaging you want around your bread for the duration of the toasting.

At 120 characters per second fhis new little Star printer is very swift and compact. It is very quiet within its grey/white frame, with the usual whirs and beeps - a whisper of confidence in letting you know your newly purchased machine is in good working order.

Star offers a feature that is fast becoming the norm rather than the exceptlon. That is the advent of selection of the various print modes and other printer controls at the printer rather then by sending down some obscure set of control codes to the printer which must in some way be embedded in the wordprocessor document you are using. This can at times be a very difficult task - to make the program work in such a way that each code does fhe desired job at the right time.

More often than not, the lack ot this feature leads to enormous compatibility problems. An example ol one of these controls is the reset command. Instead of resetting the printer to the power-on condition by the old switching of the power off and oh method or by sending the specific codes that reset particular features, the NX-10C offers the easy way.

The special soft touch mode button located with the rest of the controls at the front righthand side of the machine. Sfar's own control code will reset all of the printer's features to the power-on condition as determined by the dual-in-line set of switches which are readily accessible from the top, with two exceptions. It will not erase any characters that you have stored in the printer's RAM memory, and it won't erase the macro.

There is a convenient automatic sheet feeder that has the handy option of taking single cut sheets much like a copy machine and will automatically feed in the next sheet every time it receives or generates a form.

Other special features are discussed in chapter five of a rather extensive 115 page manual that is included with the machine. No, this is not a complefe, unabridged novel that you must first wade through before even step one of your use of the printer, but much of it is well-defined outlines of such things as dot-graphics, ASCII codes and conversions charts.

Clear, enlarged diagrams of the printer's 225 character fonts are also included along with examples of infernational character sets and business characters.

The print-out is impressive and contests even more expensive brands.

Not bargain basement, though, at around $600.

I tested it with a Commodore interface operating with a newly acquired Kwik-Write word processor and was very pleased with the results.

Possibly the most attracfive feature of the Sfar printer is the user's manual, which is a veritable textbook for first time prinfer users. Exceptionally well-documenfed in all regards, it in addition provides you with small doses of computer industry trivia and even larger amounts of dry humour, ie:"don't be offended by some the vocabulary used in this manual, not that there are any four-letter words but computer people, like other specialists, have their own jargon of the words that may sound a little strange to newcomers"; and "can you guess what a 'hex-dump' is? No, it's not where witches throw away useless spells."

Hey, I like that guy. Part of the pleasure that goes with taking a look into the valued features of this fine machine. Of course, the NX10C is Commodore compatible, which means it plugs straight into your computer. Further tests are still under way fo ascertain just how well it performs on the open road, so stay tuned next month.

abcdefghijklmnopqrstuvwxyz 1234567890
(bold)
abcdefghijklmnopqrstuvwxyz 1234567890
(normal)
abcdefghijklmnopqrstuvwxyz 1234567890
(normal-96 columns)
abcdefghijklmnopqrstuvwxyz 1234567890
(normal-136 columns)
abcdefghijklmnopqrstuvwxyz 1234567890
(normal-NLQ)
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(bold-136 columns)

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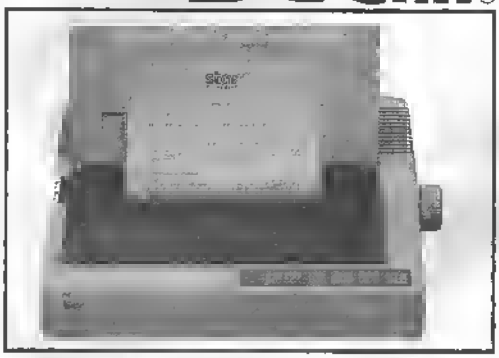

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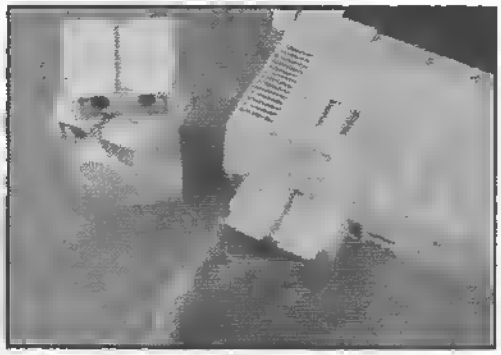

SPECIFICATIONS	NL-10
Print Method	Serial Impact Dot Matrix
Printing Speed	NLQ 30cps Draft 120cps
Data Buffer	5 KB min. (Commodore : 1 line)
Special Features	Fine Near-Letter-Quality Easy, front panel operation Optional interface cartridges Standard tractor feed Self-test Hex dump Panel mode Italic panel mode NLQ italic mode Forward and reverse micro-feed Top of form feed Left and right margin set
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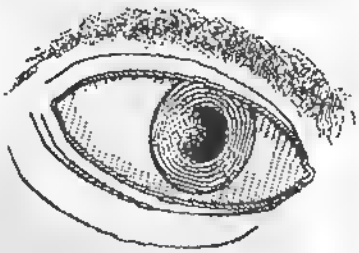
I can see you...



MicronEye

by Trent Langfield

The MicronEye, so the manufacturers say, is the easiest and least expensive solution to numerous applications requiring a low cost, all digital imaging system.

The MicronEye is an electro-optical system suitable for use with your computer. The three necessary dimensions; optics, hardware and software are all furnished with the standard package. There are three basic MicronEye systems:

1. MICRONEYE BULLET; This system has the drive electronics located on a 20 by 7 cm. card which is inserted into the computer. The IS32 OpticRam is located in the 3cm. diameter cylindrical Bullet case. The Bullet and computer are connected via a standard 16-wire flat ribbon cable.

2. IS32 OPTICRAM; The heart of the MicronEye is the OpticRam. The OpticRam was developed and manufactured by Micron Technology Inc. The OpticRam, which is located at the rear of the Bullet behind the lenses, is composed of 65, 536 individual image sensing elements called pixels. These pixels are organised into two rectangles (otherwise known as arrays) of 128 by 256 pixels each. Each array of cells is separated by an optical dead zone of about 25 elements in width.

When an image is focused onto the OpticRam, a digital representation of the image is "exposed" on the OpticRam. The MicronEye transmits this image from the OpticRam to the computer. The software included with the MicronEye takes the transmitted image and displays it on the computers graphics screen.

So basically all we have here is a very simple eyeball, well, simple compared to one of your eyes anyway. The MicronEye in itself looks very simple, but it is only after many hours of adjusting, focusing and lighting that a justifiable picture is obtained.

With this instrument it is very important that a perfect light situation is acquired, if not it is not uncommon to get a pure black or white picture. Then we have the modelling, and unless your model or object can stay still for a few seconds it's no use trying, because the picture will appear quite disjointed, if at all.

The object being pictured must be at least 40cm away unless the special "close up ring" is inserted. Your digital picture can appear on screen in varying ways, it can come out in simple black and white or in a grey shade mode which produces varying shades creating the basic illusion of depth. Shots may be printed out on the printer or saved to disk to look at later, a sort of computer photo album. For normal mode, pictures are updated every second or so, which is a convenient time when arranging light and so on. Unfortunately the hi-res mode, which is where you get your bonus size and quality photos, takes about seven seconds.

Instructions given with the MicronEye are pretty thorough and go right from basics to more complex technical applications. Generally I thought of the MicronEye as a very expensive toy. Pictures produced are basic and far from perfect. In my opinion an updated, more advanced version could really be a lot of fun.

Ratings

Machine: Commodore 64/128
Utility: MicronEye
Developers: Micron Technology
Distributors: Software Source

Graphics:	70
Documentation:	90
Presentation:	80
Ease of use:	82
Value for money:	65
Overall:	72

The Underline Truth

by Paul Blair

Among the queries I get is an oft-repeated plea - how to underline on a CBM1526 printer? The writers all bemoan the fact that, while many other printers can do bells, whistles and sundry other clever things, the 1526 (which has a whole heap of nice functions NOT included in later CBM printers) can't set off reports with nice lines under headings and so on.

Well, you CAN underline on the 1526. It takes a bit of work, but I had my hands on a 1526 for an afternoon, and made it do some useful things. My printer paper supply is a bit less than it was, but it was fun. Anyway, it was raining...

I started off in BASIC, because that gave me an wider range of (understandable to me) features to play with.

The key to the procedure lies with CHR$(141). That little feller tells most printers to do a carriage return WITHOUT a line feed. Cutting through the jargon, the print head is returned to the beginning of the line it is printing without winding the paper up a line. On the 1526, this "beginning" is usually just adjacent to the last character printed.

Can you imagine what that can do for you? Nothing? Nothing, heck. Try overprinting on the same line to create shades from white through to black, and you can do some very impressive graphics. In fact, most students of computing are given an exercise of this kind at some time or another.

Back to underlining, where we came in. By printing some characters, then a return without linefeed, we are poised to put the print head over the text just printed and print an underline character.

This short BASIC routine demonstrates one technique. After OPENing a channel to the printer and defining what is to be printed, Lines 40 and 50 print the string one character at a time, print a CHR$(141) to stay on the same line, then pop an underline character (CHR$(228)) under the last letter printed.

```
10 OPEN4,4
20 A$="UNDERLINE TEST-
   COMMODORE CBM1526"
30 FORX=1TOLEN(A$)
40 PRINT#4,SPC(X)MID$(A$,X,1)
   CHR$(141);
50 PRINT#4,SPC(X)CHR$(228)
   CHR$(141);:NEXT
60 PRINT#4:CLOSE4
```

The printer gets pretty busy during all this. Watch the printer in action - it will show you better than I can tell it.

Now, let's tackle underlining from a word processor program. I will show you how with *Easy Script,* because most of you have some knowledge of its use.

Section 8.2.11.2 of my *Easy Script* manual defines Special Characters. Briefly, you may define ASCII codes that are not obtainable from the keyboard, and access them from within your text. To set up the characters, you press F3, then enter your definitions. This will show up on the screen like this:-

```
*0=33:1=141<
```

where Key 1 is set for CHR$(33) and Key 2 for CHR$(141). To use them in the text where you want them, the sequence is simply F1 then (in this case) 0 or 1. The screen will show the number 0 or 1 in reverse character.

Try this little sample. The command line is first. Key 1 is the carriage return without linefeed, Key 2 is the underline and Key 3 is to force lower case. I'll explain the last one later on.

The second line has been specially typed for clarity. The "+" characters are spaces, 12 in each group in this case. The (1) and (222 etc) are each individual sequences of F1 and the numeral 1 (or 2 or 3) from the top row of your keyboard. The "<" characters are the RETURN symbol you usually get when you press RETURN. You knew that, of course.

```
(F3)1=141:2=228:3=17<
++++++++++++TITLE(1)++++++++++++
(222223) of your page<
<
The next line goes here.<
```

Output this to your 1526. It worked for me, so it should work for you.

The CHR$(17) is a forced return to upper case/lower case mode. Without it, the words "of your page" would print in upper case.

That's the good part. The bad news is that if you only want to underline some word or words in the middle of a line, you are going to need to do some work. You will have to determine where each word to underline falls in the printed line, because you will have to space across (in theory at least) from the left-hand margin of the line to where the underline must start. But by using output to the screen to check how things get set out, you will be able to work it out quite easily. A minor price to pay for such a gem!!

Well, that's it. The technique is easy to use, and you will become more familiar with it the more you use it. The output does suffer a bit, because the underline sits directly below the normal character. It would look better with a one dot spacing down from the line, but the character design in the 1526 won't allow it. I have been looking at a way of correcting the situation, so keep watching these pages.

There have been a few revisions to the 1526. The model used for this test was a Version 5. I don't have a Version 7 to try, but my understanding of the changes between versions suggests that there should be no difficulties using the same, or nearly the same, ideas presented here.

Dfile 128

by Ian Allen

"Do not be surprised at the low cost of this software. It's been priced so that every Commodore 128 owner can afford it. I assure you that the quality and capabilities of this program will far exceed your expectations and that your hard earned money will be well spent."

What would you think if you walked into your local computer store, browsed through the software packages and found one with a message like that? It's an event that's likely to happen to you in the near future because that's the marketing philosophy behind two of the new programs for the 128. *'dfile 128'* and *'DBMS File Utilities'* were both developed by Michaelsoft, a US company which describes itself as "A cottage industry of homespun software".

One of the painful realities of owning a computer is that nagging feeling that you've given an extortionist a blank cheque. No sooner have you brought your new toy home, than you find that it doesn't actually do very much without software, and software costs money. There is a bewildering array of software available, but how do you choose? The games are relatively easy because you can see what you will get by playing them in the store, but workhorse programs such as wordprocessors or databases present a problem. They take time to learn, and their drawbacks and weaknesses are not immediately apparent.

When it comes to software, price is not necessarily an indication of quality.

The first wordprocessor I bought was a cheapie. It turned out to be a disaster and so I decided to fork out on an expensive one. It happened to be a good one, did everything I wanted and I was happy. I then made the foolish assumption that price must indicate quality and when it came time to buy a database, I lashed out and bought an expensive one. It was a turkey. The documentation was terrible, the program slow, and I wasted a lot of time on it before I realised that it wasn't me that was the problem.

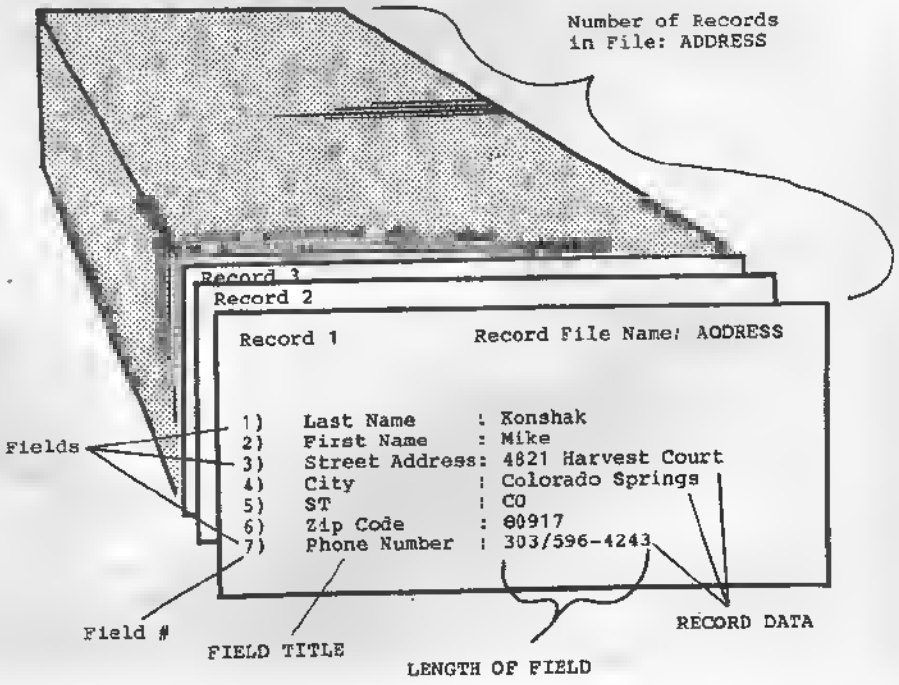
I must confess that I was cynical when I first sighted the Michaelsoft programs. "Cottage Industry" and "homespun software" conjure up images of Alvin Toffle and every programmer's fantasy equivalent of winning Lotto. I was to be pleasantly surprised.

DFILE

'dfile' has it's origins in a program called 'DATAFILE' which was first published in 'RUN' magazine. DATAFILE was written for the 64, and was based upon the idea that all of the data was held in RAM. This was somewhat of a restriction with the 64's limited memory, but it had the big advantage that all manipulation and processing of data was relatively quick, since it avoided the delays associated with accessing the 1541 drive. *'dfile 128'* is a rewritten and compiled version which exploits the greater memory and fast mode of the 128.

Databases are essentially the electronic equivalent of a card file. You can define records (cards) with fields (information), but unlike a card file it is an easy matter to sort and update the information. Electronic databases should be capable of sorting the records based on their fields and producing reports on records that have specific characteristics, e.g. a club membership list should be sortable into an alphabetic order, or alternatively searched to produce the membership renewals due in October.

Databases were originally developed for business use, and one of the prime business requirements is the capacity to handle very large numbers of records. Most of the 64/128 databases reflect this bias, (partly so they can justify their expense), and attempt to provide large capacity by employing constant disk access to relative files. The only trouble is that not everybody needs business-like capacity. *'dfile'* offers a very usable 40-60,000 bytes of record space. While it won't hold the *Readers Digest's* mailing list it's enough to comfortably fit 400-600 addresses; more than adequate for most individuals or clubs.



The number of individual records you can store is dependant upon the number (no limit) and eize of the fields (up to 160 characters) per record. With *'dfile'* you can define these according to your needs. When you define the fields of e new detabase it will tell you the maximum number it can store in that particular formet. That's handy, because it's not so easy to alter the definition later. (While thet mey eound inflexible it's not insoluble. That is why the 'DBMS' utilitiee exist. More on them later).

Unlike most of the detabases about, this one does not rely upon unique 'key' fields. Instead, it allows you to search or eort on any field, and in situations where you may heve say. two people with the same surname, you can sort on two fields e.g. lastname/firstneme.

Having defined your fields and entered your data, 'dfile' is a mini powerhouse. You can manipulate information in all kinds of ways, confident in the knowledge that once a file has been saved to disk, each time you update and save a new version, the old version is not wiped but renamed es the old version. This means you elways have a copy of the file as it wae before the most recent changes.

Most of the power of thls datebase is in its print output power. It's a snap to produce mailing lists, labels (even on multiple sticker sheets - you define the requirements), formetted reports, and calculated reports. Calculated reports ere a form where you can include math commands to produce spreadsheet-like results, performing celculations on specified fields to produce row end column results. It can do totels, averages end percentages In any row or column plus label columne and rows, and also justify decimels or alphanumerics.

You cen also save and load the formats you want for labels or celculeted results, so the program remains incredibly versatile.

This is the sort of databese I've been seeking ever eince I bought that high priced turkey. I only have two problems with it. The first is that there is no provision for output to diek of celculeted results. It'd be nice to include the occasional calculeted and formetted table In e wordprocessed erticle. The second problem ie with the inflexibility of the field format. Once defined it is difficult to change.

Michaelsoft have e suite of support programs which retail for the same price called 'DBMS File Utility Progrems'. These utilities don't provide output to disk, but do provide the ebility to merge files, clone files (ie copy selected fields into other files), export files into e standard SEO format, and read standard *'dfile'* files on screen (ueeful for debugging calculation files). The DMBS give you a way of handling databases that grow beyond orlginel expectations. It allows you to split a file into two or more subsets, each of which could then be expanded to the number of records in the original. The merge file function allows you to bring all the the sub-eections together into one lerge file, suitable for e printing run. (A utility for thet is also on the disk). 'DMBS' is an optionel extre, you won't really need it unless your neede outstrip your projections, but it le good to know it is there. If this situation ever erises, 'DBMS' will very quickly pay for itself in time seved.

Michaelsoft don't claim that their software is bug free. What software developer honestly can? But at least they acknowledge the fact and provide tips and hints in their documentation which will help you should you ever encounter a problem. I didn't find any signs of trauma while reviewing it, but the real test is 12 monthe of continuous use.

'dfile' works in both 40 and 80 column mode, but the 'fast' mode of the 128 is only employed in 80 column mode. That's because the VIC screen display chip which drives the 40 column screen doesn't synchronise with the processor in the high epeed mode. The difference is only noticeable when sorting long lists on two fields rather than one.

These progrems have much to be commended. They ere eminiently suitable for home users, (and even for some smell businesses). They are Inexpensive (reteiling et less than $40.00), and they ere also desigined to be easily backed up. You can copy them using the stenderd beckup programs on the 129 system disk. Thet's a refreshing change from the normal $150.00 programe which give you a eingle, unbackable system disk end demend you return it before they will supply a copy (and only then for a fee).

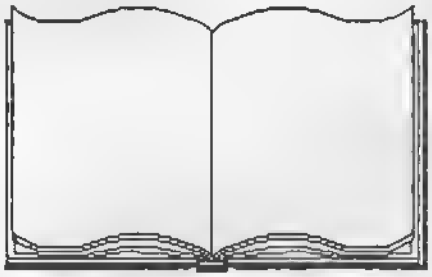
Michaelsoft ere offering excellent velue for money. I wish them every success.

The Superbase Book

by Paul Blair

Superbase has been available now for Commodore and Apple since the early eighties. In that time, it has grown to be a reasonably sophisticated package, and has spread from home into business use.

The *Superbase* package comes with some fairly hefty documentation - not that it does much for the user. Newcomers are daunted by the laborious style in which the handbook is written, and the designers and writers have carefully hidden a lot of the more useful and powerful functions in such a way that they are difficult to find. In recent years, there have been many cries for a clearly written book to help users find their way around *Superbase*.



That book has arrived. Precision Software asked Dr Bruce Hunt to put together a book with the aim of taking users beyond the ordinary menu system into the world of creating user programs that enhance *Superbase*. The book is now on sale in the UK (so far I have not seen it in Australia, but check your local dealer...), and if you want to outlay some dollars, you can order a copy yourself direct from Precision. More of that later.

Before discussing the book, a few words about *Superbase* itself. It is not a true relational database in the accepted sense of the expression, but it can be used for quite complex jobs. But there has always been a nagging feeling of unreliability, as those users whose disks have been poisoned can attest.

Early versions of SB (Version 1) had two types of crash - Type 1 where the index sectors used by SB to find records got overwritten by data, and Type 2 where all the nice things of Type 1 occurred, but with the twist that index pointers started to point to each other, creating a novel form of perpetual motion in the disk drive. Nasty.

So Precision created a recovery utility and thoughtfully provided it on later copies of SB (Version 2). It could cope with Type 1 but never with Type 2. These crashes were a wonderful feature of Version 1, creating endless hours of fun and discovery for some of us. Version 2.0 (current for C64 and C128) was meant to fix these problems. It doesn't. They are still happening.

The book. Ah, yes. That was what I was meant to write about. The blurb on the cover indicates that this book will take you from first steps to advanced techniques. But it doesn't. What you need before you start is to have worked through the tutorials given in the documentation, and have a reasonable grasp of Basic programming. Those things are essential, and there's no point in saying otherwise. The book comes AFTER the tutorials, but before the quite comprehensive reference/programming sections of the manual.

But if you are there, then the book is extremely useful. If you are into SB in any depth, then you should get a copy. Dr Hunt has written a thoughtful and helpful text, well illustrated with useful information, ideas, solutions and a few thought-provoking challenges. There is an over-riding theme-plan. Think ahead a bit, organize your thoughts, and you will create an organized program.

The index shows three main parts in the book - setting up, automating and programming your database. In turn, Hunt shows how to use the standard menu system to do most things. Then he goes on the show how to get more use out of single line commands typed in from the keyboard. The logical progression from there is obvious - writing programs in SB. These can be short or long, but their aim is the same. With the help of the book, you can really gain the maximum value from the wide abilities of SB.

But best of all is the section on troubleshooting, and a list of identified problems with the myriad of SB releases for all Commodore and Apple models. Most refreshing.

So far, the list contains no faults with the C128 Version 2, (V2.05 is the latest) although there are a few for the C64 V2, and I assume these will make problems on the C128. The two major difficulties are errors when SORTing integers, and the same old problem that disk space management gets loused up (see my notes above on Type 1/2 crashes), corrupting data disks in the process. Be sure you DO (repeat DO) take frequent back-ups of your data. If you have any doubts, ask the Air/Sea Rescue boys in Queensland what happens...

The format of the book is easy to read and use, although it would be better with spiral binding. Computer books MUST be able to lie flat on a bench when open, unless you have a third hand or a long right leg! The book is almost free of typos, and all the examples I've tried work. There is a good index, thank heaven.

If you can't find a copy locally, write or phone Precision Software. Their address is 6 Park Terrace, Worcester Park, Surrey KT4 7JZ, England. If you want to phone, dial 0011 (ISD) 44 1 330 7166. Delivery takes about seven days airmail and landed cost is about $30. Precision accept the usual plastic credit cards, and give friendly, prompt service. Tell 'em I sent you.

If you own an Apple IIc, you'd have to add all this

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Keeping up with you.

Amiga column

by Craig Schuetrumpf

A grand new personal computer has hit the Australian computer market. It is capable of high resolution graphics, animation and professional stereo sound. It is of course the new Amiga personal computer from Commodore.

The Amiga heralds a new generation in personal computing. With specialised graphic and sound ability not before seen in computers, and with a price tag of less than $10,000 dollars, this computer indeed gives power without the price. Now small business can have the computer power previously only available to the larger corporations. Computer hobbyists have a machine to explore that has expanding horizons - only now can they work well below the actual constraints of this latest piece of technology.

The Amiga is equipped with a motorola 16/32 bit 68000 processor - fairly standard on new personal PC's. But what really makes this machine different is its three custom chips, DAPHNE, AGNES, and PORTIA. These co-processors relieve the main 68000 processor of many tasks which would normally slow down the operation of the computer. They also control the graphics, animation, disk functions and sound generation. Utilizing 25 DMA (direct memory access) channels, these custom chips leave the main 68000 processor free to process multiple numeric calculations. In practice this means that you can operate the four audio channels and graphics screen whilst depositing and retrieving information from the disk drive - at the same time the 68000 processor is operating at 7.4 MHz.

The Amiga system includes the 1081 hiresolution colour monitor, a two button mouse and a 3 1/2 inch floppy disk drive with a storage capacity of 880K formalled.

512K user ram comes standard with the machine with another 192K ram built into ROM. Total memory can be expanded to 8 megabytes externally.

Graphically, you have four modes to choose:- 320x200, 320x400, 640x200 and the highest resolution of 640x400. A full colour palette of 4096 colours is available, but not all of these colours are available in every mode. In low resolution (320x200) sixteen colours are available, whilst in hi-resolution you have 640x400 in four colours. But by utilizing various software screen updating methods, other colours are available. In the HAM (Hold and modify mode) it is possible to display all 4096 colours on the screen; this has to be seen to be believed.

Because of the Amiga's unique features **expandability** is a very important thing. The Amiga comes with an expansion bus allowing most peripherals to be simply added on in a daisy chain fashion. Hard disks, digitisers, extra memory and other peripherals are added in this way.

Another important feature of the Amiga is its true **multitasking** ability. This feature is usually found only on machines many times the price. By using the 68000 processor and Amiga DOS it is possible to have several programs running simultaneously in pull down screens. In any mode and any function it is possible to call up the CLI (command line interpreter) and issue a separate group of commands to allow the machine to carry out a new task.

The application of graphics with movement makes **animation** a powerful feature. By utilising specialized functions built into the Amiga, professional animation is possible. Blitter objects or BOB's as they are better known, consist of data from memory, transferred to the screen and constantly updated - fast enough to give smooth animation. By utilising the superior graphic and animation ability of the Amiga it is now possible for the user to design his own videos, trade presentations, advertising animations or even cartoons with the quality and ease of operation.

As well as superb graphics, **sound** is an integral part of the Amiga. Its four voice stereo synthesizer cannot be obtained in existing equipment for less than $2,000. With further utilisation and development of the sound capabilities, the Amiga could be expanded to compete with dedicated music systems costing many thousands of dollars. A MIDI interface is now available allowing the user to interface the Amiga to external synthezizers. By combining the sound sampling ability along with MIDI control, professional results can be cheaply achieved.

Also built into the sound synthezizer is a **voice synthezizer**. By utilising built in commands the user simply types the text to be spoken and the Amiga speaks it back. The flexibility of variable inflection, pitch and rate controls allows the user to design their own voice characteristics. For instance you can have any voice from a male sound to an alien, extra-terrestial voice. The possibilities for educational and professional applications are endless.

Another exciting new product for the Amiga is Sidecar. Sidecar is a living and breathing creature - not 'vapourware' as many believed. It allows the user to run **IBM PC software** on the Amiga. This gives the user the flexibility of being able to pick from the large catalogue of existing IBM PC software. The advantage of this system is that the Sidecar's operation comes up in a window within Amiga DOS, allowing two different operating systems to run concurrently. Future developments will allow the Amiga and PC to 'swap' information, thus a PC database could be receiving data from an Amiga application.

I see no point in buying the Amiga just as an IBM PC clone. As the catalogue of Amiga software products increases, the quality and speed of the product will be far superior to IBM PC Software.

Bundled software that comes standard includes Amiga DOS, Microsoft Basic, Amiga Tutor and other utilities. It comes fully supported with documentation covering setting up the machine through to a full description of microsoft BASIC. The recommended retail price of the Amiga System including a Hi-res color monitor is amazing at $2,495.

Software titles for architects, graphic designers,

engineers, musicians and hobbyists are currently being released in Australia.

Software for conventional **business** operation, such as *VIP Professional, Textcraft* and *Scribble* are now available, with database and accounting software soon to be released.

As the Amiga progresses, more and more software titles will be released. Software developers in Australia are currently working on exciting new products with more titles being released in America and the UK every week.

Now there is a computer that challenges areas of industry previously considered unrealistic in the application of computer technology - mainly because of the price and lack of flexibility. **Professionals**, properly supported by the right software, now have an affordable tool, as powerful as anything else twice the price.

Hobbyists have a computer to fully utilise their creative talents, whether that be directing their own music videos or designing an orchestra.

It is my aim to keep readers of this column informed of the rapid development of the Amiga. Through reviewing new products and providing up to date information on the machine, I hope this will become a reference for present and future Amiga users.

Using *Graphicraft*

The Amiga's Introductory Painting System

by Louis R Wallace

The first program you buy for your Amiga may well be *Graphicraft*. This easy-to-use drawing and painting system is probably one of the most common programs found in Amiga software libraries. It is very good for first-time users who may be new to computer paint packages, and allows you to draw in the Amiga's 32-colour 320 x 200 graphics mode, using pop-down menus and the two-button Amiga mouse. It can be used in either 256K or 512K mode.

Graphicraft's six main functions are found in menus available at the top of the screen. From the PROJECTS menu, you access the program's non-graphics functions, like loading and saving screens and brushes. This menu option also lets you clear your picture from the screen, or print it out on any printer - black-only or full-colour - supportd by Amiga Preferences. Since Preferences comes set for Epson printers and serial output, you must change the Preferences to reflect your printer type, if it differs from these default values.

A word of warning to 256K Amiga users. Before you print out your picture, be sure it is saved to disk. This is because after you have printed it, you will be required to reset the Amiga and reload Graphicraft to continue painting. Any picture in memory will therefore be lost.

To load a previously saved picture, you can choose OPEN from the PROJECTS menu, or you can simply type in the picture's name. Being able to type in the name is an important feature because it lets you use the AmigaDOS file prefixes to load from subdirectories or even other disk drives.

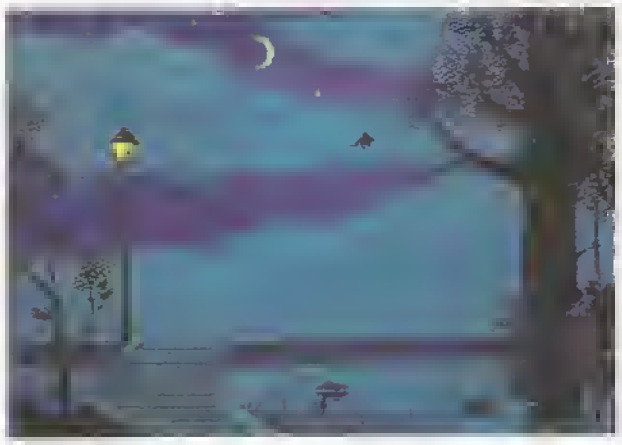
Because there are two options for saving a picture using the PROJECTS menu, you have a certain amount of flexibility in working with your pictures. The SAVE option within the PROJECTS menu replaces any picture with the same name. The SAVE AS option allows you to create different versions of the picture without erasing the original.

Graphicraft's SHAPES menu gives you access to the program's five basic drawing options: freehand, lines, rectangles, fill and text. You turn off one option by selecting another, and change colours by going to the COLOR menu.

The Rectangle selection allows you to make boxes quickly. Just choose where you want a corner to be, click the mouse and move to the location of the opposite corner. The box will grow, changing shape as you move the mouse (a technique called "rubber-banding"). When you have it just the way you want it, click the mouse again and the rectangle will be drawn.

The Line option in the SHAPES menu lets you make perfectly straight lines betwen two points. If you want to fill the interior of a shape, choose the Fill option. When you move the pointer to the inside of the area to be filled and click the mouse, the area will quickly flood fill with the colour you have selected. But be careful that the area is completely enclosed, or the fill will leak out and could completely cover the screen.

You can also put text within your picture using the Text option from the SHAPES menu. The program gives you a choice of two sizes of text and three different ways to present it on the screen.



From within the BRUSH menu, you choose from among 16 pre-made brushes. Additional libraries of different brush shapes can be maintained on disk, and, in fact, an extra library comes with the program. To design your own brush shapes, choose Custom brush from the BRUSH menu.

The COLOR menu offers 32 different colours to be used as your drawing colour. You can also create your own custom colour palette by selecting Change Palette from within this menu. With this, you can change or copy colours or create an entire range of colours that is totally different from the original palette. You modify the colour palette using three "slider gadgets" that control the red, green and blue colour signals to mix any of the possible 4096 colours the Amiga can produce.

If you want to erase part of a screen, or the whole screen, you can resort to several different commands within the EDIT menu that make these changes easy. For instance, use the Frame command to mark off an area of your screen. You can then use the Erase command to fill that area with the background colour (effectively "erasing" it), or the Cut, Copy and Paste commands to either cut it out and paste it elsewhere, or simply paste a copy of it in a different area of the screen, leaving the original intact.

My favourite menu option is SPECIALS. The commands within this menu let you magnify an area for fine editing, create kaleidoscopic effects, draw in custom rainbow paint, and create pseudo-animation.

For example, if you choose the Cycle Draw command from SPECIALS, you first define a range of colours. Then, when you draw something in this mode, the trail left by the brush is a rainbow of the colours you selected. Once you've drawn something using the Cycle Draw, choose Cycle Colour - and the colours within the range you selected will begin to rotate at any speed you choose to create the illusion of motion. This lets you make animated pictures that will astound your friends.

All in all, *Graphicraft* is a good program that inexpensively introduces you to painting and drawing on your Amiga. It may not answer the needs of some professional Amiga artists, but then not all of us are serious artists. But we can all use *Graphicraft* for serious fun.

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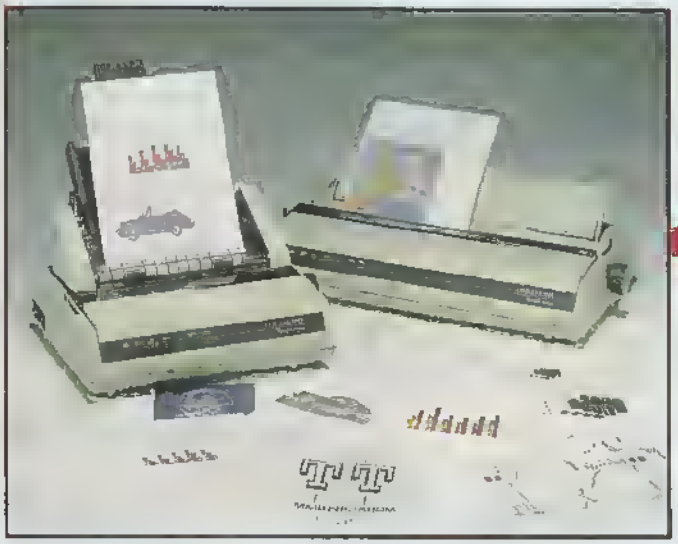

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UNITED COMPUTERS

Behind the Screens

With J. Mark Hunter

There are a lot of great games on the market at the moment, but of course, personal preference dictates what you are going to buy. And, it goes without saying, the choice of the games reviewer in some magazine will not necessarily be in harmony with yours.

Yet, at this time, I hope that my humble word will at least have an iota of bearing on the choices you select when you make that final decision of your own accord.

The reviews that I've presented to you in this month's edition of *The Australian Commodore Review* magazine in my column known as "BEHIND THE SCREENS" have been varied both in selection according to type, whether it be serious adventure or smirk-inducing fun, and in the style of prose that I've chosen to write in.

With that in mind, I present to you from the Strategic Wargames series: *Iwo Jima*.

And my personal preference dictates to me that *Iwo Jima* is at this moment - number one. Let me explain.

Personally I do not like the "fairy tale" type of games where you're heading back in time somewhere to some forgotten land. It you're playing for escapism, like we all are, then I think it's better to get a chance to see how we might win in the future, then watch as we lose miserably in the past.

Who are we going to battle in the future - fleshy, slimy dragons or Star Wars fliers with Communist insignias?

For the hostile warmongers in the audience - *Iwo Jima* gives you a chance to correct your last mistakes, get your strategy perfected, then move on to the next war. Gradually, with each new game on the market, we'll replay every 20th century conflict until finally we've become winningly effective in readiness for whatever fight you and your country chose to participate in.

A Catch 22, though. What do you want - to win the real war, or lose and give the next generation of computerheads a new game to play?

A question to the governments - do pacifists get to take their PCs into prison? Or better still, can we sit up on the frontline and program the new game as it happens?

The losers get first release of the new product and a 12 month subscription to *The Australian Commodore Review* to anywhere in what's left of the world. What a bargain!

The battle of Iwo Jima was one of the bloodiest for the Allies in the whole of World War II. And one of the most successful box offices hits for Paramount Pictures.

In the closing stages of the war in the Pacific, Iwo Jima offered US forces the prospect of an air base near Japan that could provide fighter support and emergency landing facilities to aircraft on bombing runs to Tokyo.

The island, which is about 4.5 miles long and 2.5 miles wide, at its broadest point, was garrisoned by some 22,000 Japanese under the command of General Kuribyashi.

US superiority in numbers virtually guaranteed the outcome, but the cost was tremendous.

All, except 216, Japanese died fighting for the island, and the US Marines suffered almost 7,000 men killed, and more than 17,000 wounded, in the 36 days that it took to capture it.

It was the US Marines' costliest and toughest fight, with the Marines suffering a 1.5 to 1 casualty rate.

Private First Class Gomer Pyle was one of those killed. He died in Sergeant Carter's arms. He never saw Mayberry again.

Iwo Jima is a simulation of that battle, and each game turn represents one full day.

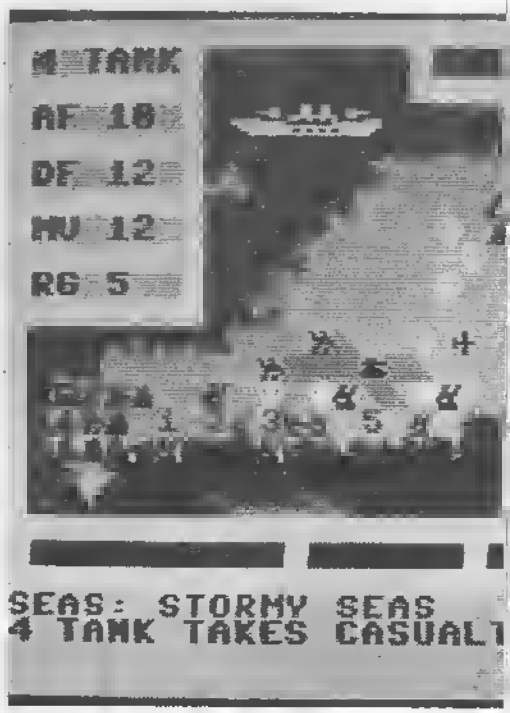
There are five levels of difficulty, and depending upon the level selected the game is played over 32 to 36 turns.

You will control the American forces, and the computer will control the Japanese troops.

For obvious reasons, this game is not sold in Japan today - but they know about

J. Mark Hunter

Iwo Jima



it - and from now on Pearl Harbor is once again, a covetous option.

Your objective is to eliminate, in combat, all of the Japanese units on the map, within the number of game turns, and failure to do so will mean that you've lost the game.

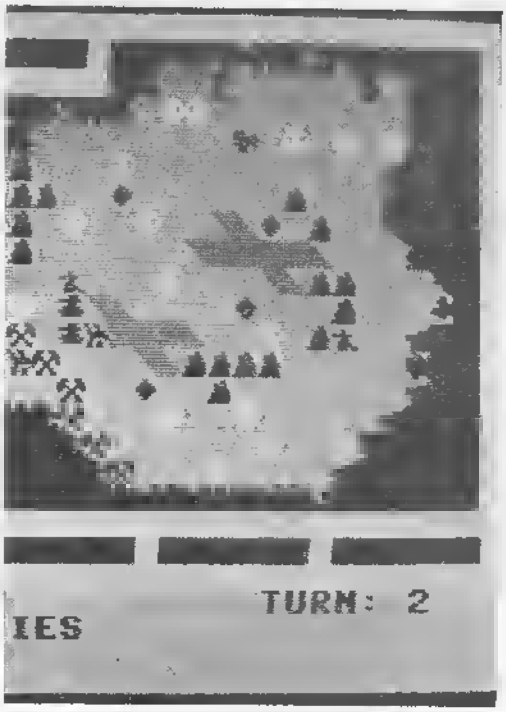
The American units are displayed as black characters, and the Japanese units are coloured red. The Paramount film crew are the ones in Bermuda shorts.

The game is played by use of a joystick to either port of the computer, and all commands are given by either movement of the joystick or pressing the fire button, which signifies the commitment of an order.

Selection of difficulty level is from one to five with option one being the easiest.

The screen will clear, and a map of Iwo Jima island will appear, together with "windows" for specific information, and a blank area at the bottom of the screen where prompts and more general information is displayed.

Down the left hand side of the screen are five windows which are used to display Identity, Aggression Factor, Defence Factor, Movement Factor, and Range Factor of the U.S. unit currently in play.



In the central position at the top of the screen is the Command window in which the alternative Orders are selected.

Immediately below the map display is a row of five windows in which the identity and Unit factors of any of the Japanese units firing, being fired on, or being examined, are displayed.

As a U.S. or Japanese Unit receives damage, and its Aggression Factor is depleted, this will be reflected by a change of value in the appropriate window.

On the map you will see symbols representing airfields, mountains, village ruins, minefields, scrub and quarries. Additionally, the numerals 1 to 6 are displayed, which identify the soft volcanic ash landing beaches available to the U.S. forces.

AF is the Aggression Factor. This represents the attack strength, the weaponry, the determination, the morale, and to an extent, the reputation of a unit. When AF reaches zero the unit fails to be an effective fighting force, and is eliminated from the game.

The Aggression Factor can never be increased from its initial points, nor when it's reduced can it be restored. This is, therefore, an important detail to monitor, and consider carefully before committing a unit to combat.

And especially when they're taking group photos to send home to the girls.

DF is the Defence Factor of the unit, representing the defensive strength and instinct for self-preservation. It also is a measuring rod for telling how a particular unit will be able to cope with the terrain ahead and enemy they will be fighting.

MV is the Movement Factor or speed of the unit. It is the number of points which can be expended by the unit, each turn, when moving around the map. Each type of terrain has a different movement cost.

RG is the Range Factor of the unit, and is the number of squares that an enemy battalion may be away from the U.S. company.

If you can smell burnt sushi in the air - you're close.

At the top of the centre screen is a window in which appear the orders available for the unit. (Unfortunately they ran out of the last of the pizza at Midway. Here, try a weiner schnitzel, they're really excellent).

The possible commands are Attack, Land, Move, Quit and Pass. You select options by moving the joystick to the selections and confirming it by firing.

In my first game I started off in the south-west corner of Iwo Jima (I think there's a supermarket there now), with six units. You're dispensed upon the shore by pressing the "land" option and then selecting the beach number you wish to land on.

Once upon shore, say beach number 3, you will next be instructed to move, and questioned as to which direction. Note that each move into progression can only be made after every unit has had its turn. You can't have one unit up in the jungles ripping up radio-makers and taking a beating, while another is still in the aircraft carrier's mess hall dunking donuts. It just wouldn't be cricket.

Close to the shore though are landmines which might be a good idea to avoid. (I found this helpful).

There is only one frame to the game, that of the map of Iwo Jima and the command windows etcetera, positioned around the edges. You move from left to right, or east across the island.

Your mission is to take the necessary battle stations such as the airstrip which is a shaded grey cross.

You are able to proceed and manoeuvre according to the four important factors related to your troops as outlined above. There may be a mountainous terrain in the way, or quarry pits or even burnt out villages that take time to survey and secure. As well, only one troop is allowed to be in a certain area at a time, on one beach for instance, or the computer will not allow you to land.

You begin the attack on the first Japanese outposts, one troop firing at a time, then perhaps the next moving closer in order to be within range, or proceeding on to their own combat.

One prompt at the lower portion of the screen that comes up after an attack on a Japanese unit as a support factor is the message: "DO YOU WANT NAVAL GUNFIRE ON THIS UNIT?" By pressing your own fire button you answer yes, or move your joystick until the "NO" mode is registered. The naval ship can only fire though, if the sea condition is calm.

These same conditions apply to a particular troop being able to land or not in heavy surf or calm ebb.

But take the naval fire. Those gunboats out there carry a lot of muscle and sure assist in obliterating the Wokmasters.

After each unit on the American side has had its turn at "peacekeeping" the screen will register the "Japanese phase." This is where you've got to sit back and hopelessly watch the results of the bad moves you made, and possibly have several of your units wiped out in one round. Take heart though, many times during my play I found that my strategies had been quite acceptable and the Japanese phase lasted only several seconds and barely a red, white and blue hair was touched. Other times, a kamikaze pilot may even get through and nose dive right into your face!

And the Japanese, too, you've got to remember, were sturdy warriors. This isn't a "hit and run" crusade where "one size hits all" as it were. Sometimes it will take several units several rounds of firing on the same Japanese battalion and even a few shells lobbed over from the navy vessels off shore to dispose finally of it.

The degree of difficulty selected at the start of the game affects the Victory Conditions and the Japanese Forces' strengths and actions. It also assists in knowing how much onion dip to make for the party.

As the difficulty increases you will notice a corresponding increase in the Defence Factors of the Japanese units, representing an increase in morale, leadership, determination, and even better preparation and defensive tactics.

The units tend to fight harder, and will dig in where possible. Japanese infantry units also have the opportunity, at the start of the game, to waive all movement points and take up a fortified positions in trenches and pillboxes.

Time is on the Japanese side. A too cautious approach can be just as self-defeating as throwing every unit into contact with the nearest enemy unit without first considering its strengths and weaknesses.

The Japanese side is well aware of the power of its artillery, and will concentrate its fire, where possible, in order to eliminate your better units as quickly as possible.

The Japanese units in the game differ in reactions from the U.S. units, in that if they as a result of combat cease to be an effective fighting unit, they will on occasion carry out a suicide (BANZAI) charge against an adjoining U.S. unit. This can be slightly disturbing, so lock your windows, huh.

The guide book accompanying the Commodore 64 cassette is quite extensive in detailing the operations of the game, and included in the manual is a very sobering and thought-provoking account of some of the actual battles that took place on the small but mighty island of Iwo Jima in the South Pacific, 1945. From "MARINES AT WAR" by Ian Dear, "THE PACIFIC WAR" by John Costello, "ATLAS OF BATTLES" by Richard Natkiel and others, the writer and designer, Mr. John Bethell, has adapted with strenuous brilliance a most exciting and compelling logistical play. *Iwo Jima* really puts you there. It gives you time for rational thought, to learn the minds of war, to walk the uncertain steps of the men on the frontline. The only sound effects are those from artillery fire and the movement of troops and tanks, but the visuals although simplistic, provide you with a detailed military mapping of what you've got happening on your computer - two nations at war.

It's just incredible. It takes the toe rope to the summit of my top ten favourite software games this month.

Iwo Jima - they should make a war from the game.

Ratings

Distributor: OziSoft
Price: Disk $35.95
Cassette: $35.95

Graphics:	68
Presentation:	75
Do[illegible]n:	95
Pl[illegible]	9[illegible]
[illegible]	6[illegible]
Sou[illegible]	6[illegible]
Mus[illegible]	5[illegible]
Las[illegible]bility:	8[illegible]
Overall:	83

Enigma Force

reviewed by Johnno

ENIGMA Force, the game, tells of a group of fighters out to catch evil leader General Malthadius Zoff. He likes killing people - especially computer games players.

On your side is Zark Montor, leader, and Syylk, Servina Maris, and Maul the defence droid. They will protect you and your group from destruction by Zoff's evil forces.

Commands are issued by way of Icons, small diagrams of significance which perform a specific operation in the game.

Animation takes place in the top quarter of the screen. The icons are spread along the bottom of the screen for easy access.

Some of the characters have a mind of their own, so there is a mindprobe included in the icons. If a player disobeys orders use the mindprobe to bring them into line.

The icons include *Defend and Hold* and *Hound to Death,* which will kill any of Zoff's men on the screen.

Enigma Force comes with a catchy computer played tune - but if you want to struggle along in deathly silence apart from the sound effects you can switch it off.

As is well known by true believers *Shadow Fire* was the first part of *Enigma Force.*

Shadow Fire also runs with icon driven movements, but in *Enigma Force* you move the players as well as control them.

The game comes with a short but detailed instruction booklet, which contains all the icons complete with instructions, plus a help sheet which you place on the top of your keyboard.

The help sheet shows all the keys and controls used in *Enigma Force.*

This game was written and produced by Denton Designs, also responsible, of course, for *Shadow Fire* and, more memorably, *Frankie Goes To Holly Wood.*

COMMENT: *Enigma Force* shows how easy it is to design a good game that doesn't confuse the player. I have played many games that have made me angry and frustrated, but *Enigma Force* is a game that is easy to play but hard to master. It is never twice the same, yet still has the same basic plot of capturing Zoff.

The graphics are of the standard I expect from Denton Designs - excellent and detailed - and the music is the same, just brilliant.

If you've heard the music in *Frankie Goes to Hollywood,* that is the kind that comes with *Enigma Force.*

The game should be bought by anyone who likes arcade adventure style games. It could be a mega hit on the charts.

"Disengaging hyperdrive, sir."

"Well done, Syylk.

"Oh no! We are going in for a crash landing on the planet Voltron. It must have been caused by Zoff's devious mind-boggling powers that made us crash here, and he escaped. We must catch him before he escapes. Later when we are at full strength we will search this station for Zoff, get him back, and escape on the nearest working ship.

"It's about time we search for Zoff now, Syylk. Are you alright?"

"Yes, Zark,"

"Servina?"

"All is well, Zark."

"How about Maul? Is he intact after the crash?"

"Just wait a second and I will check."

Moments later Syylk says, "All OK on Maul Zark".

"Then let us search this planet and find Zoff. If anyone gets in the way - destroy. Use the lasers from Korth.

"Syylk, you go that way and Servina, I will go over here And Maul, if you get a distress signal - search and then destroy. . . ."

Ratings

Distributor: SD
Price: $39.95

Graphics:	90
Presentation:	95
Documentation:	82
Playability:	66
Difficulty:	92
Sound:	80
Music:	56
Lastability:	99
Overall:	97

DEEP BENEATH the Atlentic Ocean, where the earth's crust is thinnest lies the Titan power station. This station controls ell the power of the world's industrial nations.

This station has been saboteged by the dreaded RLF (Robot Liberation Front) as exclusively forecast by Isaac Asimov in "I, Robot".

If you have not already realised it, robots are not people and when they rebel they are revolting.

Asimov believed that they would one day rise egeinst their humen masters and devised the first four rules of robot behaviour to keep the tin-can monsters under control.

Pleinly his rules and reguletions have been ignored and the Robot Control Police Force have been nodding off on the job.

We, the human masters of the naughty, tin robots have very stupidly taught them the art of war all too well. We have teught them how to ettack, how to operate weapons, how to kill, loot, maim and pillage as well as other naughty things. We have, through stupidity and idleness, created a nation of Frenkensteins.

Now we must pay the consequences.

Between the robotisetion of the civilised world as we know it today and freedom stands you, e few government scientists and a computer.

The government scientists have finally menaged to communicate and get control of one of the Titan computers.

But this is, of course, only the begining of your adventure. Robots don't believe that life was meant to be easy.

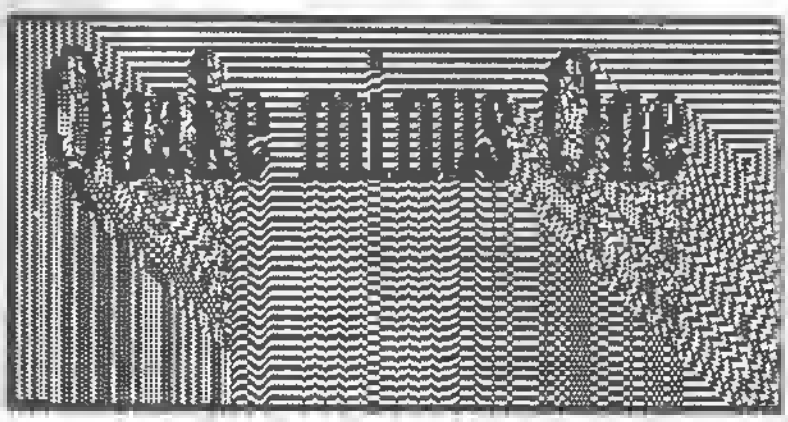
Quake Minus One runs elong similar lines to Denton Design's *Enigme Force*, which is totally icon (small pictures used instead of words) controlled.

In this game you control a computer called the Hermes. The display of the Hermes computer screen is in the top querter of your screen while the bottom three quarters contains the icons.

The aim of your mission is to get control of the other four computers that control the Titen Power Station. These computers are Zeus, Poseidon, Vulcan, and Ares.

You are in control, just, of the Hermes computer, and the story is that the RLF - like Women's Lib but much more dengerous - will sabotege the Titen Power Station.

The plot thickens end the scenerio unfolds.



On-board computer ready for photon operation by Captain Baltik.

After biesting the Bulkan shield on one of the enemy's tanks I had one look through the Porton scanner and shot the last laser cannon left on my craft.

Crash!!!

Quick as a flash the Zeus tank has disappeared from sight - I have, I think, blown it back to planet Gortax.

I feel so victorious I go and collect the controller from the Zeus computer because I know full well the Zeus computer mobile is the Titan's strategy machine.

Then I go in search of the Ares computer home base. I know I am getting close for the Ares tanks keep coming, one after the other.

I check the armoury and find I have a large choice of weapons left on board, the Torpedo, Laser, Missile Pod, Fireball Gun, Ionic Blaster, Shock Shield and Plasma Shield.

Ha! I am ermed to the teeth, ready to etteck or defend. (Oh foolish, innocent, over-optimistic human.)

Looking at the map on the bottom left-hand side of my screen I see a

complex and ridged panel of mazes.

Carefully I study it and try and locate the Ares computer. Got it.

Quickly and quietly I move to the location of the Ares computer. It is surrounded with tanks and weaponry.

I look once and think twice. Is it worth it or not?

I decide it isn't worth it, and retreat back to a quiet location. Too late.

The Ares computer has detected me and sent hundreds of tanks which I can't hold off.

Time passes . . .

I am running out of fire power after fighting for nine hours.

I know that only one hour is left to take control of all the other computers.

One last, desperate attempt.

I make my way through the maze of tanks and avoid them more by luck than good judgement.

I am grasping the handle of my control lever, I press the button on the right side of the panel and use the Ionic blaster to capture the Ares outpost.

Just as I disable the computer a tank sends its death beacon right up my tail.

As I attempt to try a holding motion on the screen my blood starts to freeze and I die a cold and painful death under the Atlantic Ocean. Good-bye cruel world.

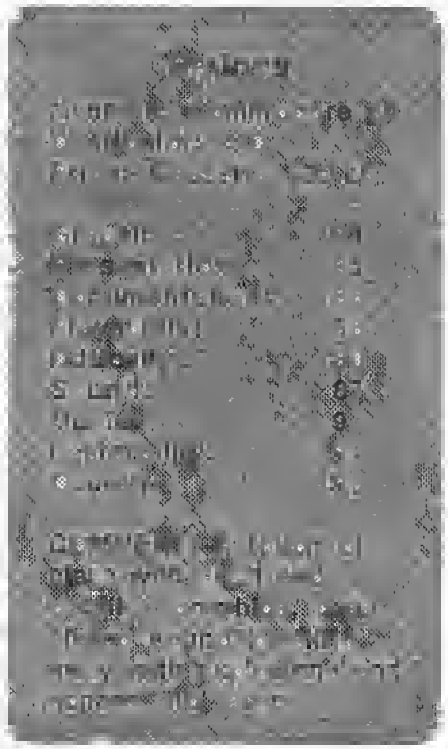
And as I slowly die I watch the timer of the Titan run out and explode.

The after effect of the explosion is enormous. The explosion causes earthquakes and tidal waves which destroy most of the planet's surface.

That was about it. I'd had enough Fultonic blasting for the day.

The game has many other facilities built in. These include underground stetions, control towers, fuel tanks, energisers, factories, quake suppressors, cooling dome, rigs, conducting columns, bunkers, sonar beacons, and magnetrons.

The on screen grephics are very well designed. *Quake Minus One* is not only exciting end easy to play but has many quite sophisticated built in features, which make the game more fun.



If you're English and a dedicated fan of the English National Football League, then this is the program for you. But considering we are presently in Australia and that most of you buying this program will be Australians, I think it was pointless releasing it anywhere other than the UK. It's not as though you need to be a football (or soccer) expert, athough a good working knowledge of every single team in the league would be a great help.

In this text based simulation you become the manager of 10 teams. You can begin at the first round, when 32 non-league clubs join the 48 clubs from the Third and Fourth divisions. Alternatively, you can start at the third round, when the First and Second divisions join with the successful teams from the first two rounds and then it's the battle to the Cup Final.

Authentic Cup draws present Cup tries in which real life form decides the winners, but a shrewd choice of tactics from you may just turn the tables and provide a surprising result, while a BIG WIN is always possible.

If your clubs reach the later rounds of the competition, you will have to take some managerial decisions which, if decided wrongly, could end your teams' hopes of success. If your knowledge of true F.A cup form is good it will steer your clubs to new success but tough management is also very important. All league clubs in the competition have home and away real form rating due to past performances.

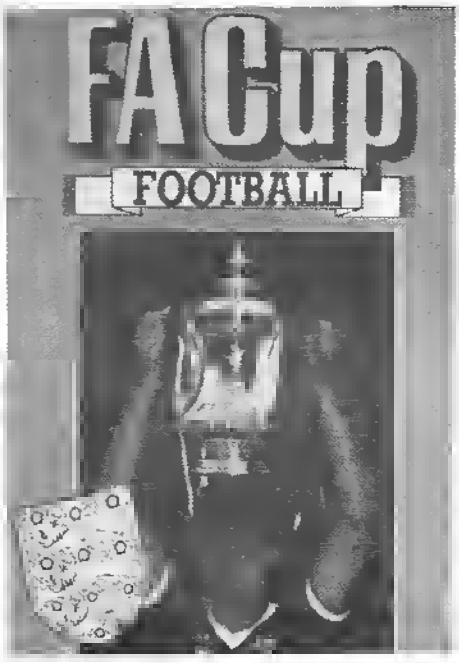
Included in the software package are a relatively small set of instructions covering the game play very well. That in itself illustrates the simplicity of the actual workings of the program. Allthough playing the simulation can prove a little more complex. There are interesting situations that do pop up such as little news flashes that blink on the screen after each round, sometimes telling of a player's death, affecting the team's performance, or a decision made by the board from previous Cup matches.

Loading the program seems to take forever as it has a very slow loader incorporated into it. Overall I can't really see this one being a big hit with anyone other than a true fan of the F.A. Cup Football.

F.A. CUP F⚽⚽TBALL

by John Hatchman

"If you're English and a dedicated fan of the English National Football League, then this is the program for you."



Machine: Commodore 64/128
Distributor: OziSoft
Price: Disk and cassette $29.95

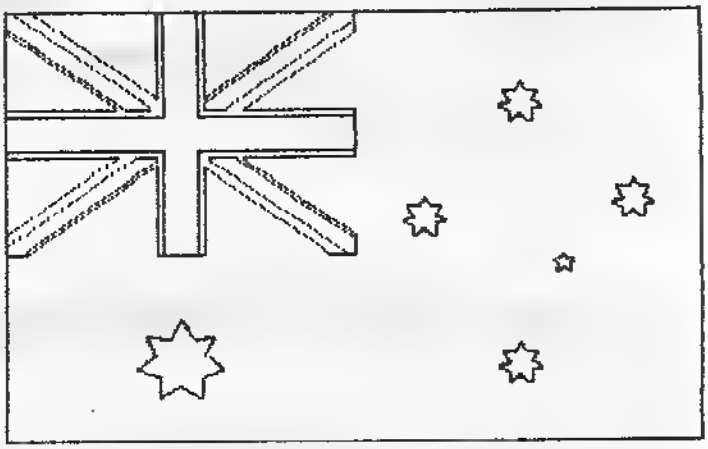
RATINGS

Graphics:	40
Sound:	35
Originality:	85
Presentation:	70
Addictiveness: (not too addictive)	30
Overall:	35

COMMENT
This program should have been kept in the U.K

More Nourishment for the MPS 802 (1526) Printer

by Denis Hare



After reading my last article 'MPS802(1526)PRINTER AND THE C64' which appeared in the August issue of *The Australian Commodore Review*, you should now realize that the MPS802 adds a great deal of versatility to your C64 or C128 computer, including High Resolution (HIRES) screen printing not detailed in the printer's manual.

In this article I will detail how to improve the program 'HIRES GRAPHIC PRINT MPS802' (LISTING 3) from the last article and how to change it to a BIG GRAPHIC PRINT plus how to use both programs with a number of commercial programs.

Improvements to Listing 3

Delete line 4055, change lines 4080, 4100 and 4120 then add lines 4143, 4156 and 4176 as follows:

```
Delete 4055
Change 4080 COUNTER=0:SL=2*4096:BASE=SL:GOSUB4215
Change 4100 FOR BYTE=0TO7:F=FRE(0)
Change 4120 BASE=BASE+8:IF BASE>SL+8000 THEN
        CLOSE4:CLOSE5:GOTO4365
Add  4143 B=0
Add  4156 B=B+A
Add  4176 IF B=0 THEN 4190
```

Line 4055 was used to define the string and basic areas however can cause problems with garbage collection, if the HIRES location is changed. Adding F=FRE(0) kills the garbage by not allowing the memory for string variables to build up. Lines 4080 and 4120 were changed to make the program easier to change for printing non standard memory HIRES screens, which is the case with a number of commercial programs. By adding lines 4143, 4156 and 4176 the program is speeded up slightly and the printer does not work as hard.

Big graphic print

The program 'BIG GRAPHIC PRINT MPS802' detailed in LISTING 7, will dump a standard HIRES screen to the MPS802, taking up to 20 minutes, with a print out of 19cm x 12cm in size. This is four times the area of print, compared to the program detailed in LISTING 3.

The program is basically LISTING 3 with the refinements detailed above, along with changes to make it a BIG PRINT.

'BIG GRAPHIC PRINT MPS802' (LISTING 7) loads each HIRES byte twice into the cassette butter before rotating and defining the programmable character for printing. So each row of print, which is enhanced once, only contains a strip of four bytes of HIRES information, instead of that of LISTING 3, which contains eight.

The program 'AUSTRALIAN FLAG' detailed in LISTING 8, draws the Australian flag. This program is too long for the normal HIRES location because of BASIC programming space and therefore had to be located in a non-standard HIRES memory location. Type in LISTING 7 and LISTING 8 as one (or APPEND 7 to 8), changing the value of SL in line 4080 to SL=6*4096 and after saving, RUN for a BIG PRINT of the Australian Flag. Get the kids to colour the flag (good exercise, in justifying the cost of the computer to your wife).

To speed up the whole process, use a basic compiler (*Petspeed* will do the trick). If you do not have a basic compiler then you can speed up the screen preparation by deleting line 44 and adding the following line:

```
Add  30 CLR:F=FRE(0):DIMA((-65536*(F<0)+F)/5-10):CLR
```

This line creates a large array and then CLR it, BASIC will zero out anything in its path, including the HIRES screen memory.

Graphic printing with commercial programs

The program in LISTING 3 (Modified) or LISTING 7 can be used to print out hires screens you have saved to disk, from Doodles, just by adding the program 'HIRES FILE PRINTER MPS802', as detailed in LISTING 9 to either of the graphic printing programs and change the value of SL in line 4080 to SL=9216 and after saving, RUN to print a Doodle file saved on disk.

To change the program to accommodate LOGO and screen magic files from *Print Shop*, carry out the following:

Change SL in line 4120 to SL=8192 and then change the program name in line 2060 to the correct name. SAVE and RUN to print the program file on disk.

Many other programs can be used in a similiar way, it's just a case of finding the HIRES screen start location (SL) and making the necessary adjustments.

Printing graphic library pictures

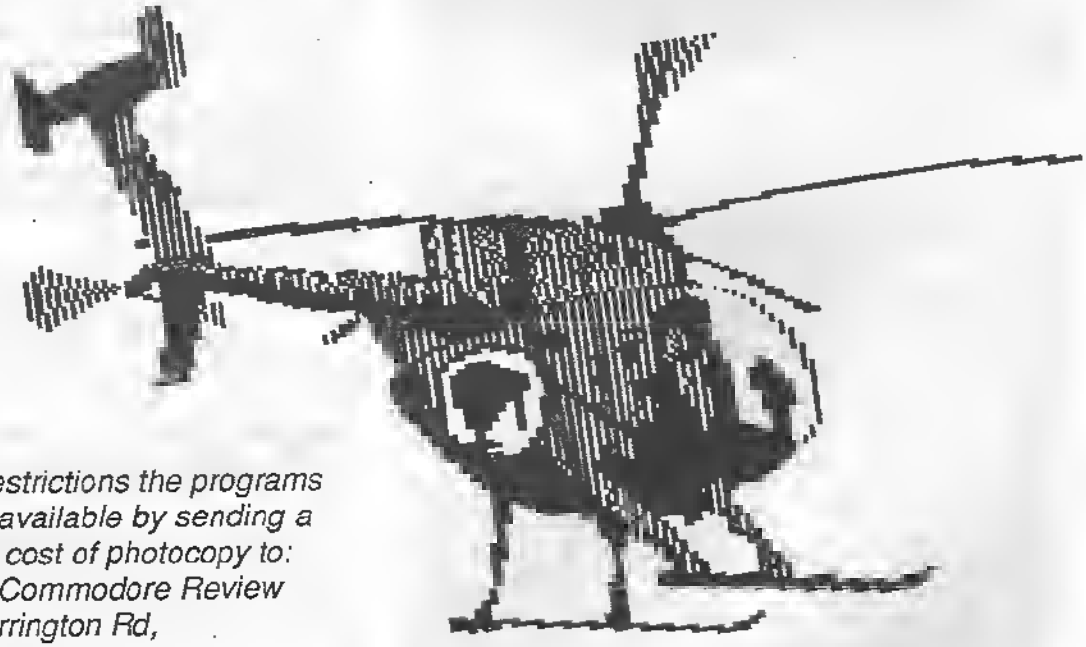
The graphic library pictures from CADPIC can also be printed on the MPS802 by loading the picture file, with the 'DISPLAY PROGRAM', which is published with each graphic library picture. Just load the required picture using the 'DISPLAY PROGRAM', with the correct file name in line 7. After the picture is displayed on the screen, hit RUN STOP/RESTORE and load LISTING 3 (modified) or LISTING 7. Change SL in line 4080 to SL=6*4096 and then RUN. Whammo, more colouring in for the kids.

Viatel

I have had a number of questions on using the MPS802 with Viatel. Unfortunately most Viatel software packages for the C64/C128, do not support the MPS802/1526. The COMMUNICATOR from DOTSOFT is one example. Some however support normal character printing with an asterisk being printed in place of the special Prestel graphics. The Commodore Viatel Adaptor (75/1200 Baud Modem) is one such device.

Title screen from The Communicator printed on MPS802 after the Laser Soft modification to the program.

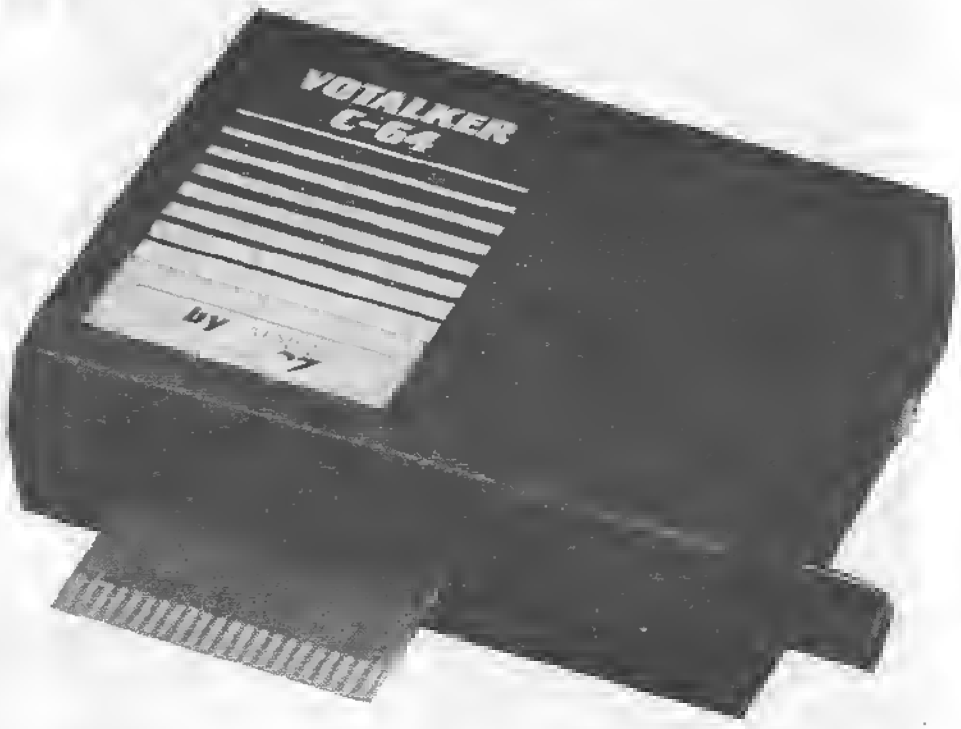
The HIRES printing programs of LISTING 3 and LISTING 7 are not easily converted for use with Viatel software packages, because of the special Prestel graphics used. I have just tested a excellent program from Laser Soft that will modify The Communicator so that it is compatible with the MPS802/1526. The program is called 802/1526 COMMUN-I-NSTALL and is available direct from Laser Soft at Curzon St, Toowoomba, 4350 or CW Electronics stores. Other versions are in a advanced stage for use with a number of commercial programs including *Doodle* and *Print Shop*.



Due to space restrictions the programs mentioned are available by sending a SAE and $2 for cost of photocopy to: The Australian Commodore Review Top Rear, 4 Carrington Rd, Randwick, NSW 2031.

Speaking with a Votalker

by Phillip Dean



There have been speech synthesizers, and there have speech synthesizers, but the latest offering from Votrax, the Votalker C-64, is no ordinary addition to the fray.

For years Votrax have been building speech synthesizers, however their Rolls Royce quality was always matched by a Rolls Royce price. These days the price has dropped somewhat, but the quality remains. It still remains one of the most expensive speech synthesizers around, but is far and away the best.

The Votalker plugs into the cartridge port, just like any other cartridge, and allocates for itself 8K of memory. The Votalker adds 13 extra commands which are used to activate the synthesizer. These commands are SPEAK, ECHO, ECHOOFF, SPEECH, SPEECHOFF, VO#, PI#, MODE#, UPPERCASE, LOWERCASE, FKEYS, FKEYSOFF, HELP. The Cartridge-Box contains the speech chip, software, and a speaker. On the side of the box is an external speech rate knob, a very handy feature as most synthesizers only speak at one slow rate. Also with the package is a Trivia Game, that talks to you (obviously).

To get the Votalker talking, it takes one simple command, the speak command.

Structured like a print statement, all you need do is type SPEAK "Hello there, I am the Votalker" and the Votalker will say everything between the quotes. The true capabilities of the Votalker are soon seen, as it pronounces the words you typed in with incredible accuracy. While not perfect, it does an extremely good job at a very difficult task.

Trying to work out how to say an unknown word can be hard enough for a person, but it's even harder for a computer. Using a complex set of algorithms the Votalker translates how the word should sound, based on the spelling and the Votalker's predefined rules for working out how the word should pronounced. The closer the spelling of a word to its pronunciation, the better the Votalker will be. This whole translation process makes the Votalker the best synthesizer for translating unseen words.

Of course you can always modify the spelling to make it sound even more realistic, but most times you can understand what it is saying, even if it is not said perfectly. When a word is spoken, it is said in individual sounds known as phonemes, rather than as a whole word. By using this method the Votalker has an unlimited vocabulary as it can produce any word by placing the different phonemes together to make the words. Other synthesizers can only say whole words, and therefore usually only have a vocabulary of about 200 words.

The tone of voice of the Votalker is very much like a monotone, as with most synthesizers, although with the use of PI# command (Pitch Command) and VO# (Volume) command you can make the voice sound much more natural. Another handy feature of the Votalker and its translation method is that it recognises punctuation such as a comma and fullstop. Upon encountering these it does a short pause for the comma, and a long pause for a fullstop, just as we do in our speech. Using this also helps to break up the monotony of the voice. It also recognises other symbols such a '$' as 'dollars', and '&' as 'and'.

Votalker has three different modes of operation, Conversation, Verbatim, and Character-to-Character. In Conversation (MODE 1) everything is translated, and spoken as you would read it, punctuation marks are recognised, and spoken as above (e.g. short pause for comma). Numbers are translated and spoken, e.g 123 would be said as 'one hundred and twenty three', not 'one two three'. Verbatim (MODE 2) is similar to mode 1

except all punctuation marks and symbols are pronounced, e.g. a comma would be spoken as 'comma' instead of a short pause.

In the third mode, each letter, number, symbol and punctuation mark is spoken individually rather than as a whole word, e.g. the word 'hello' would be spelt 'h e l l o'. Therefore Mode 2 or Mode 3 could be used to have the Votalker read back to you a program listing that you may have typed for checking etc.

Another nifty feature of the Votalker is the ECHO command. With this function enabled, everything printed to the screen is also said by the Votalker. It is therefore possible to develop a Terminal program that could say each word as it came in from the modem. It also allows you to list a disk directory program, and as it lists it also says it.

The trivia game included with the package, TRIVIA TALKER II, is a neat little program, used mainly to demonstrate the capabilities of the Votalker. Being in basic it runs a bit slow, but is a novel way of demonstrating the Votalker. You can use either the ready made questions or create your own.

Overall the Votalker C-64 is a neat package. Far and away the best speech synthesizer I have heard, it loses nothing in quality to any of its competitors.

Its features, including its ability to translate speech, and echo mode, make it a very complete synthesizer which would be very useful for a visually impaired user, being able to read stories, repeat all screen messages, and read out program listings and disk directories. And besides you get a free trivia program as well.

Vorpal Utility Kit

by John Hatchman

Since early times, the 1541 disk drive has been considered as a HIPPO. Because of its slowness, there have been many attempts to speed the drive up and keep it to a reliable standard of alignment. Well, there have been a few attempts like the Mach 5 cart, not to mention the favourite Fast Load from Epyx, the same people that brought you this marvelous package.

The Vorpal Utility Kit can speed up the loading of a program by 25 times, yes, I said an incredible 25 times normal speed. In the following review I will cover how this package speeds up loading and adjust according to the alignment of your drive. Yes, this package can align your drive by a software method. Sounds incredible, does it not.

I guess all you people with a C-64 have brought at least one of Epyx's strategy games like *Winter Games*. Well, did you know that each event on the disk has an average file length of 150 blocks, and yet it loads in about six seconds from scratch. Yes this package will give you the incredible speed that *Winter Games* has built into it.

While going through my reviewing box, I came across a box answering to the name of "Vorpal Utility Kit". I read the instructions, and was intrigued by the impressive utilities to be found on this diskette. So after powering up the computer, I inserted the disk and waited for it to load. It loaded before I could blink, yes, it had the Vorpal fast load system installed on the disk. Once loaded, I was hit with a menu of :-

A> Return To Basic
B> Vorpal Disk/File Utilities
C> Head Alignment/Speed Check
D> Vorpal Disk Copy Utility
E> Vloader Installation

Well,this menu sounds impressive, I said to myself and then I chose the file utilities. After a brief blanking of the screen, I was hit with a massive menu, which consisted of Rename disk, Validate disk, Format disk, Pack disk, File information/catalog, Delete file, Undelete file, Change file type, Protect file, Unprotect file, Set boot file, Rename file, Copy/convert files and set drive defaults, and finally return to main menu. I will only briefly describe a few of the above, and go onto the next menu.

There is quite an impressive range in the utility menu. The formatter takes little less than 17 seconds, and the pack disk option will compact a disk so that all the file blocks are squashed into a sector after sector format, so

you start at track 1 and go through to treck 35 in order. The change file type option is used to change a file from a program to a USR or SEO file. One of the features of the Vorpal kit is the speed of its disk loading, and the copy/convert file option is the most useful in this menu. This option allows you to change a slow loading PRG file, to a fast loading VORPAL file.

Enough about that menu, how about we get into the alignment menu. This menu allows you to check your drive speed and alignment, with no hassles at all. All you have to do is to select Check/Repair head alignment option and the computer does the rest. Having selected this option, you are required to leave the Vorpal Utility Kit disk in the drive, because the Vorpal Kit disk is aligned to a perfectly aligned drive. If your drive is OK then you will be given a number between 1 and 100. If the number is between 1 and 25 then you drive is in good condition, if between 26 and 50 then it is satisfactory and if above, you will be prompted with the message REPAIR HEAD ALIGNMENT?

If you choose to align your drive the software way, your drive will react to the program, then once the program thinks the drive is aligned, it will check again to see if it is aligned properly. Then the other option on the alignment menu is to check drive speed. This also requires the Vorpal disk left in the drive so the speed can be tested. A consistently changing digit will give the speed of your drive. If it is between 297 and 303 then your drive is all right.

Now this option on the main menu is quite remarkable. It will copy a whole disk in less than four minutes (not saying that thats fast or anything), but as explained in the instructions of the Utility Kit, the Vorpal Saver saves different types of sectors and you need a high tech copier to copy there sort of sectors, so that's why this copy utility was incorporated into the Utility Kit. Not many options in this menu I'm afraid, the only options are if you want to change a device number. Well, that sums up that menu, now onto the most valuable menu of all.

This must be the highlight of this package, the Vloader Installer.

This menu has only four options, which are very much similar to each other. The first on the agenda is the Install Vloader option. Sounds good, well all it does is install the fast loading program on the disk, so it can be just booted up and then you can manually load the game you want to load. Once the Vloader has been installed onto the disk you can just power up and load the first file, because the utility kit makes the first file the boot file for the Vorpal Loader.

Now for the second option on the menu - Install With Load File. All this option does is puts the boot as the first file then saves the main part of the Vorpal Loader at the end of the directory, and the main file incorporates a file name which upon booting will load that certain file name straight into memory, but not run the file.

The next option is the Install With Run Basic Program. This options does the same as the above and puts the boot first, the main parts second, but the main part has a filename built into it and an auto run facility. The final jolt on the menu is the Install With SYS To Run A Program option. All this does, is the same as the load and run of a basic program, but it will sys a

That about sums up all the options available on the disk. Oh yeah, there is a neat sports preview on the second side of the Vorpal disk. The Vorpal Kit also works in conjunction with the fast load cartridge. I found it very easy getting used to the kit and I am you will adjust to it as easily as I did.

The package is well worth the money, as the alignment program is great. Just about forgot to tell you that the Vorpal Loader lives in the memory location from $CE00 to $CFFF. Well worth it, get going and but it now before everyone else buys it before you.

Comment: A well worth while piece of software. An easy to use and great sophisticated loading system. All budding beginners should already have this for their slow loading software. Pity you can't load off tape, but who uses tape much any more. Keep up the high standard, EPYX.

Utility: Vorpal Utility Kit
Machine: Commodore 64/128
Publisher: EPYX
Distributor: ECP
Price: $59.95

Adventurer's Realm

by Michael Spiteri

Welcome to the new-improved adventure section, Adventurer's Realm. Over the next couple of months we hope to bring you news & reviews of the latest adventure and strategy games on the market, as well as news of what is happening overseas. If it's gossip you like, we'll have lots of that too! One of our strongest features will be the help section where we will attempt to answer any of your hardest adventure problems. Any problems we cannot help you with, we will display under the 'Help Wanted' section. We will not say no to any donations of solutions, tips, clues and maps. On the subject of maps, we will try to display on these pages at least one map each issue, starting this issue with a map of the troublesome maze in ZORK I !

BEST SELLING ADVENTURES

With the help of some very friendly computer software stores, I managed to track down the names of the Australia's top selling adventure & strategy games, and ended up with the following results.

Australia's Top Five adventure games are:
1) LORD OF THE RINGS - Melbourne House
2) HITCH-HIKER'S GUIDE - Infocom
3) BALLYHOO - Infocom
4) ULTIMA IV
5) THE HOBBIT - Melbourne House

Australia's Top Five strategic games are:
1) CRUSADE IN EUROPE - Ozisoft
2) THEATRE EUROPE - Ozisoft
3) CARRIERS AT WAR - Ozisoft
4) MERCENARY
5) DECISION IN THE DESERT

(Compiled with the help of Angus & Robertson Bookshop, Chambers Computer Supplies, Strategic Software and The Local Computer Shop.)

I'd like to know what YOUR favourite adventure games are, so send in a list, and we will try and compile a Reader's Top Ten!

WHAT'S NEW IN ADVENTURES?

Adventure games seem to appear on the market by the dozen; here is a Rapid Roundup of some mysteries you'll be able to solve:

THE PAWN has to be the world's hottest property at the momment. This superbly graphical adventure game for the Amiga and Atari ST really is something incredible. It claims to be the most interactive adventure game on the market, much more interactive than Infocom games (wow, that IS what I call - Interaction!!) With a huge (when I mean huge, I mean, like, HUGE!) vocabulary, and the graphics, well they're something even better. Watch out for it! Rumour has it that there will be a C64 version without the pretty pictures - more news when we get some!

Scott Adams is up to his tricks again with the release of yet another adventure in his Questrobe series, ***FANTASTIC FOUR***. Another super graphic adventure that promises to be better than its predecessors. A review of this coming soon.

Infocom's latest adventure, ***BALLYHOO***, has stormed up the charts. This highly original, highly entertaining adventure takes a visit to the circus. The aim is simply to steal the spotlight of the show, and remain alive to hear the applause! Aimed at novice adventure gamers, *Ballyhoo* is up to Infocom's usual high standards.

The ***PRICE OF MAJICK*** isn't a new Queen song, but it is the latest offering from the British firm - Level 9. This is another game that has vastly improved in the INTERACTIVE area, with very complex commands now being accepted like a breeze. The graphics are also very good. Those who like casting spells and killing monsters should like this game, which should be released very shortly.

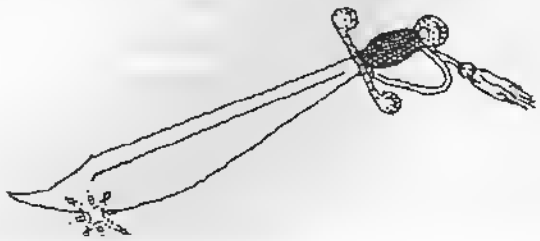
REVIEW: *HUNCHBACK III - THE ADVENTURE*

Our bell-ringing friend makes a comeback, yet this time we are not treated to another zany ARCADE (pardon my language) GAME. The goal is still the same - to rescue Esmerelda. The player must guide Quasimodo in his quest for his sweetheart, who has been taken hostage by the evil Cardinal, in collusion with the Bishop of Notre Damn.

The actual game is split up into three parts (spread over two cassettes). Part one is to escape from Notre Damn, where our hero is intially trapped. Part two is to guide our hero under the city of Paris until you find the Cardinal's mansion; and finally, part three is actually challenging the Cardinal and escaping with Esmerelda. You must complete one part before being allowed to load up the next part.

The screen is presented very effectively. It features a wide screen picture (which doesn't change) at the top. Superimposed on this picture is a smaller picture of the current location. If there is no picture of the location then a picture of either Quasimodo (asking the question 'What next?') or a picture of the characters at that place. Alongside this picture is a graphic representation of the player's inventory. Below all this is a text description. The text is displayed cleverly using gothic characters, however, this tends to be very unclear and hard to read at times. I found the text and graphics very impressive, and at times, very amusing.

The makers probably think that choosing an unintellectual



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Continual development has enabled us to launch an improved version of this product that incorporates a few useful improvements PLUS it is even more powerful. At the time of going to press our thorough testing could not find one single, memory resident, program that "Freeze Frame" could not handle. (This includes all the latest software up to 4th March 1986.)

OPERATING "FREEZE FRAME"

"Freeze Frame" is simplicity itself to use. It is a cartridge based device that simply plugs into the cartridge port. When the computer is switched on a message is displayed; pressing Return will clear the computer back to normal start up screen. Software can now be loaded from tape or disk completely as normal. The latest version of "Freeze Frame" will to the best of our knowledge, allow ANY software to load and run normally (unlike competitive products).

"Freeze Frame" can be brought into operation at any convenient point by pressing the button on the cartridge. You can do one of three things.

1. Pressing 'D' will save a working version of the program in memory to a formatted disk. This version will include a high speed reload.
2. Pressing 'S' will do the same as 'D' except that the reload will be at standard 1541 load speed. (Also suitable for U.S spec machines, 4040 drives, fast load cartridges, etc.)
3. Pressing 'T' will save a working version of the program in memory to tape. This incorporates a high speed reload at approx. 2400 baud.

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DISK TO DISK — TAPE TO TAPE

PLUS the added flexibility of being able to save at any stage and return to that point. Because the program restarts from the point that the button is pressed.

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Extensive program use by entering POKEs for endless lives etc. and then save with those active.

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Answer No

"FREEZE FRAME" HAS NO SERIOUS COMPETITION

THE COMPETITION

A successful product always spawns imitators and 'Freeze Frame' is certainly no exception. Fortunately for us, but perhaps not for the people who have purchased them, their main similarity seems to be in advertising style.

"Icepick" is a good product BUT when it comes to making backups it is not in the same class as "Freeze Frame".

SPECIAL SALE OFFER - ONLY $99.00

SERIOUS WARNING THIS IS AN EXTREMELY POWERFUL PRODUCT AND IS STRICTLY FOR PERSONAL USE. DON'T COMPARE IT WITH ANY OTHER PRODUCT. NOTHING ELSE OFFERS THE POWER OF "FREEZE FRAME"

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"**Nova Transfer**" will **transfer to disc** the latest Nova Load programs including **multi stage loaders**. A very useful utility that is of particular use for the programs that need to load more information as the program progresses.

"DISCO" will transfer standard speed load software to disc.

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"**DOUBLE BACKUP**" is a **very fast** two drive backup.

As well as these important newcomers all the old favourite utilities which have helped earn Disector such a large following are included. These include **Menu Maker (selective), Fast Format, Unscratch, Disc Monitor, Disc Orderly, Fast File Copy, Index, Index, plus several other useful utilities**.
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Fast SAVE at twice normal speed.

Fast Format takes just 20 seconds.

Fast Backup copies an entire disc in four minutes. (Not heavily protected software.)

Fast File Copier for selective fast copying.

Improved DOS commands (DOS 5.1) makes for easy use of the disc drive eg F5will LOAD and display a directory without overwriting BASIC. F5 will LOAD"0:*",8,1. F1 is RUN and F3 is LIST, etc. etc. very useful.

Incorporates Centronics Printer software (user port) with CBM graphics capability. See 'Commodore Connexion' for suitable lead.

A RESET switch is fitted. (We have found this to be "unstoppable". It also preserves the tape buffer.)

NO MEMORY IS USED by this cartridge. It is totally "transparent" and uses switching techniques.

"128" compatible in 64 mode.

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DOLPHIN DOS 2.0 is not a cartridge but a full parallel DOS conversion which fits inside the 1541 and C64/128.

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Programmable Keypad

The program loads the numbers 0 to 15 in the joystick buffer, checking for a low return via pin 6 (bit 4), and on receipt of this low it then stores the corresponding character in the keyboard buffer, and jumps to the normal keyboard interrupt routine. It then returns to the scan routine on the joystick port.

SWITCH DIAGRAM

Theory:

This keypad is in response to a letter from Mark Noonan of Ashburton in Victoria. Mark's original letter set me through several prototypes which parallelled the keys he required on the keyboard, until one day a fellow computer engineer pointed out a few interesting facts about using the joystick port, and from there was born a fully programmable keypad.

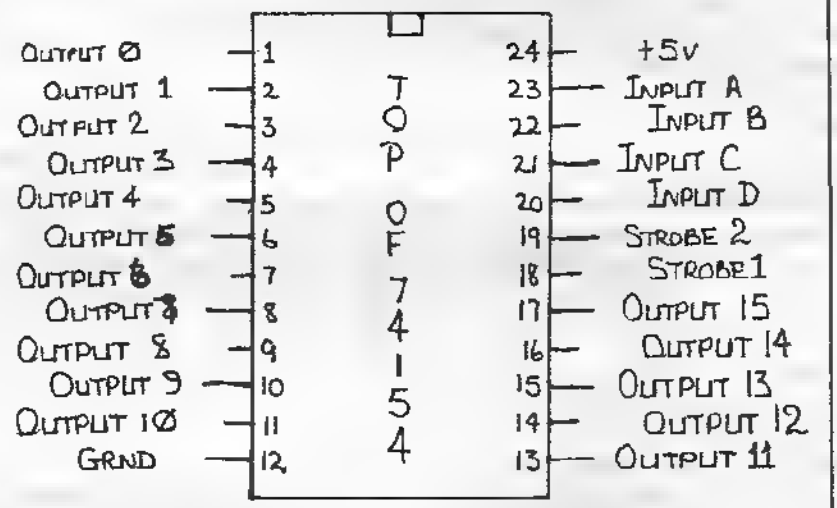
The joystick port has five switch lines, four for direction and one for fire. If the four direction lines are given a value of 1 for closed switch and 0 for open switch then we can use the following table to show the maximum number of possible combinations available from those switches.

SWITCHES	A	B	C	D
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

As you can see we can obtain 16 separate outputs from the 4 signal lines for the joystick port direction switches.

The 74154 integrated circuit takes 4 inputs and according to the table above decodes those inputs to 16 output lines, thus enabling us to have 16 switches decoded through the joystick port, using the five lines as a return.

74154 CIRCUIT



If we now pulse the 4 switch lines of the joystick port with the table contents sequentially, then each of the sixteen outputs will go low in turn, but unless the keyswitch on that output is depressed, then there will be no indication to the C64 that there is any return result. If however kayswitch 6 is being held closed at the time that the input sends that output low then the low output will be sensed by the C64 via pin 6 of the joystick port.

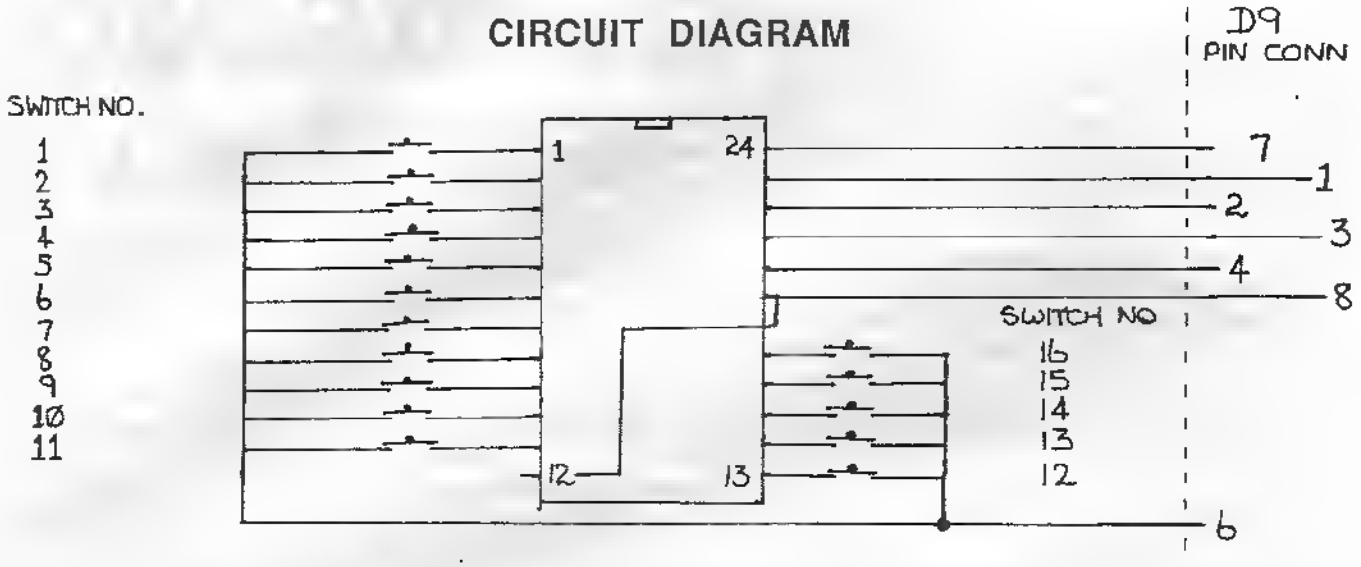
Construction:

PARTS:

74154 - RADIO SPARES
VEROBOARD - DICK SMITH H5616
SWITCHES - DICK SMITH S1200 (4 packs)
24 PIN I.C. SOCKET - DICK SMITH P4240
DB9 SOCKET - DICK SMITH P2685
DB9 COVER - DICK SMITH P2686
12 CORE CABLE - DICK SMITH W2141

PROGRAMMING

CIRCUIT DIAGRAM



NOTE! The above retailers were chosen on availability of branches, not price - if possible shop around for better prices.

TOOLS:
Soldering Iron
Cutters
Wire Strippers
3/16 Drill bit

MISCELLANEOUS:
Hook up wire (insulated)
Solder

Examine the vero board and you will notice that one side has copper tracks running down it, all components are mounted from the other side of the board so that the legs may be soldered to these tracks.

Examine the layout diagram below, and insert IC socket and switches as shown, do not solder yet. Cut copper tracks as indicated, with 3/16 drill bit held in hand (use a hole to guide bit). Check each cut to ensure that no copper is still shorting. (No two pins ot the IC socket should be shorted together at this stage.) The right hand row of pins on each bank of switches should be shorted together by a copper track, these may now be soldered to that track, and then the four common tracks can be shorted by soldering together with insulated hook up wire. Solder the IC socket in place. Using insulated hook up wire solder pin 12 of the IC socket to pin 18 and then form a solder bridge to short pins 18 and 19.

It now becomes necessary to decide the order of the switches for your own usages, ie.

1 2 3 4 1 5 9 13

5 6 7 8 or 2 6 10 14

9 10 11 12 3 7 11 15

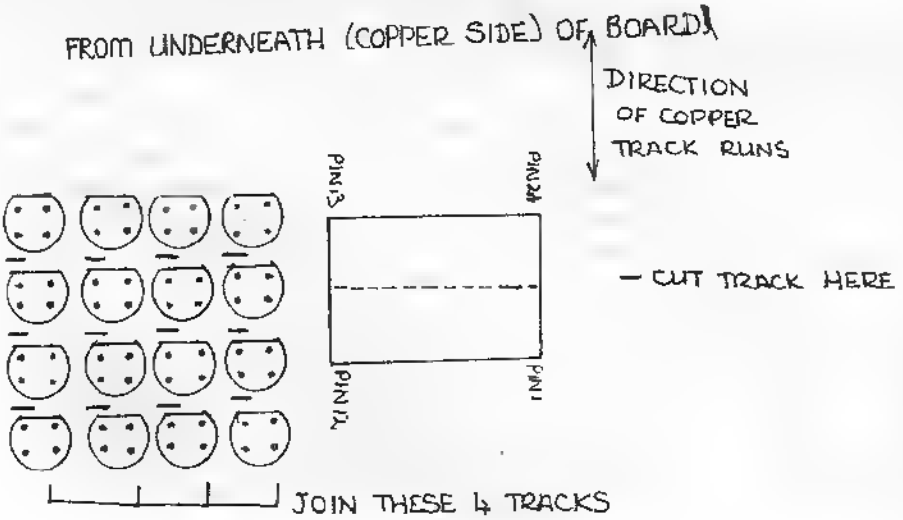
13 14 15 16 4 8 12 16

or any other order you desire.

Using hook up wire make the following connections from the unsoldered legs of the switch to the relative IC pin using the layout as a guide.

Switch	I.C. Pin
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	13
13	14
14	15
15	16
16	17

BOARD LAYOUT



If you have previously built my simple tester from issue 33 then this can be used to check your wiring. Connect one end of the tester to the 4 commoned tracks you shorted earlier, the other end to pin 1 of the IC socket. There should not be a beep from the tester until switch 1 is pressed, repeat for all other switches, using the above table to select the correct pin of the IC socket.

Strip back about 2 cm of the 12 core cable and select 7 wires and solder them to pins 1,2,3,4,6,7,8 of DB 9 socket, taking note of the colours of the wires. At the other end of the cable strip back the insulation for approximately 10 cm and then take note of the wires from the DB 9 connector and cut back the rest of the wires. Trim to length and solder the wires according to the following table.

DB 9 pin	
1	Pin 23 of IC socket
2	Pin 22 of IC socket
3	Pin 21 of IC socket
4	Pin 20 of IC socket
6	4 tracks commoned earlier
7	Pin 24 of IC socket
8	Pin 18/19 of IC socket

Recheck connections to ensure there are no short circuits between tracks and then insert the 74154 in the socket. The keyboard is now complete. Put the cover onto the DB 9.

Insert the DB 9 connector into the joystick port 2 outlet and turn on your C64. Normal powerup should occur, but your keypad will not work yet. If normal power up does not occur, or your C64 does not work correctly, power off your system and recheck your keypad, as you have made a mistake in construction.

If all is correct, then you may enter the following program to make your keypad work.

Lines 10 to 130 are basic loader

Lines 1000-1140 are the M/L program

Lines 1160-1310 are the character codes (in this case 1 2 3 4 5 6 7 8 9 0 (space), D A T (return). These can be changed to whatever you like with the appropriate code. Common codes are given in the following table, for more see any reputable book on C64 programming.

All that remains is for you to make a housing for your keypad, and this I will leave up to you.

It is hoped that this and others of my projects will soon be on the market fully assembled or as kits. Keep your eyes on the *Commmodore Review* for details.

) -41	=-61	O-81			
Ret-13	3-51	G-71			
Del-20	4-52	H-72	* -42	>-62	R-82
! -33	5-53	I-73	+ -43	?-63	S-83
" -34	6-54	J-74	, -44	@-64	T-84
# -35	7-55	K-75	- -45	A-65	U-85
$ -36	8-56	L-76	. -46	B-66	V-86
% -37	9-57	M-77	/ -47	C-67	W-87
& -38	:-58	N-78	0 -48	D-68	X-88
' -39	;-59	O-79	1 -49	E-69	Y-89
(-40	<-60	P-80	2 -50	F-70	Z-90

```
10 rem*** programable keypad***
20 :
30 fori=49152 to 49266
40 reada
50 c=c+a
60 pokei,a
70 nexti
80 fori=49267 to 49281
90 reada
100 pokei,a
110 nexti
120 print"enable sys49152"
130 print"disable sys49155"
140 :
1000 data 76,18,192,120,173,112,192,141
1010 data 20,3,173,113,192,141,21,3
1020 data 88,96,120,173,20,3,141,112
1030 data 192,173,21,3,141,113,192,169
1040 data 47,141,20,3,169,192,141,21
1050 data 3,169,16,133,254,88,96,173
1060 data 137,2,197,198,240,57,169,15
1070 data 141,2,220,160,0,140,0,220
1080 data 173,0,220,41,16,208,28,196
1090 data 254,208,8,198,253,208,27,169
1100 data 4,208,2,169,20,133,253,185
1110 data 114,192,166,198,157,119,2,230
1120 data 198,208,5,200,192,16,208,213
1130 data 132,254,169,255,141,2,220,76
1140 data 49,234
1150 :
1160 data 49:rem*switch 1 value 1*
1170 data 50:rem*switch 2 value 2*
1180 data 51:rem*switch 3 value 3*
1190 data 52:rem*switch 4 value 4*
1200 data 53:rem*switch 5 value 5*
1210 data 54:rem*switch 6 value 6*
1220 data 55:rem*switch 7 value 7*
1230 data 56:rem*switch 8 value 8*
1240 data 57:rem*switch 9 value 9*
1250 data 48:rem*switch 10 value 0*
1260 data 32:rem*switch 11 value space*
1270 data 44:rem*switch 12 value ,*
1280 data 68:rem*switch 13 value d*
1290 data 65:rem*switch 14 value a*
1300 data 84:rem*switch 15 value t*
1310 data 13:rem*switch 16 value ret*
```

This article must end with a thank you to my wife Kerrie, who puts up with my disappearances out to the garage to build prototypes, never questions the funny orders she gets to buy things she does not even know the name of, unscrambles my copious notes into readable formats and enters them into the C64, and most of all supplies the endless cups of coffee. For all that and more, thank you, Kerrie.

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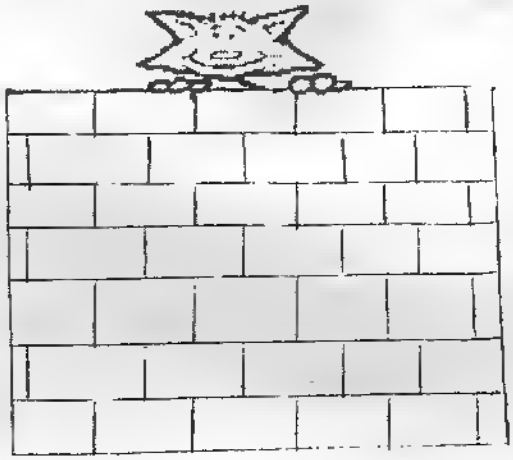
Hidden 64 Memory

by Alan R and
Julie R Krauss



BASIC programmers can POKE data into the Commodore 64's hidden RAM, but retrieving that data requires switching between blocks of RAM and ROM. The machine language program given here makes it easy to do what BASIC can't do directly - giving you an extra 20K.

The Commodore 64 contains 24 kilobytes of Random Access Memory (RAM) which cannot immediately be used by BASIC. However, that memory is accessible to the VIC-II chip, so it seems an ideal place to store a high-resolution (bit-mapped) screen (as well as other large arrays of data). The catch is that although it is possible to move data into this area using POKE statements, you can't retrieve all of it directly using BASIC. In this article we describe a technique which makes most of this large block of memory available to the BASIC programmer.

How to get Five Quarts to a Gallon

The microprocessor in most smaller computers, including the Timex 1000, IBM PC, and DEC PDP-11, has 16 or fewer memory address lines. So these computers can address no more than 2 to the power of 16 - 64K - bytes of memory directly. The more expensive machines *appear* to have a larger addressable memory because their memory-management circuitry and operating systems allow them tc switch blocks of memory into and out of their actual address space. The inexpensive Commodore 64 has no special Memory Management Unit, yet it is able to address 20K of Read Only Memory (ROM) and numerous I/O chips plus 64K of RAM. This is like filling a one-gallon pitcher with five quarts of water. It works because the microprocessor can switch between various blocks of ROM and RAM even when they have the same addresses.

In its normal configuration, the first 2K of the 64's memory is used as a work area for the Operating System, and for screen memory. Of the remaining RAM, locations 2048 through 40959 are the programmer's BASIC area. The space above 40959 contains 4K of RAM (addresses 49152-53247) which is not contiguous with BASIC's dedicated area and can be accessed by BASIC only via PIIKs and POKEs; by the ROM BASIC interpreter (40960-49151); by the Kernal Operating System (57344-65535); and by the Input-Output (I/O) circuitry (53248-57343). However, there is another 20K of RAM which is similarly addressed; to be used, it must be switched in and out of the ROM-masked space. This chore is handled by registers at locations 0 and 1.

What the Pointers mean

Although the extra RAM isn't directly available to BASIC, data may be stored there by using the POKE instruction. However, a PEEK ot one of these locations will return the value stored at that address in ROM. In order to have access to the corresponding RAM, it is necessary to set a pointer so that the processor will ignore the ROM. Bits 0, 1, and 2 of location 1 are the pointers. Their functions are as follows:

Bit	Value	Meaning
0	1	Indicates normal BASIC ROM
	0	Indicates noncontiguous RAM (addresses 40960-49151)
1	1	Indicates Kernal ROM
	0	Indicates underlying RAM (addresses 57344-65535)
2	1	Indicates I/O chips
	0	Indicates ROM character

If we wish to save a variable - call it A - at, say, address 4500, and later retrieve it, we might envision a routine like this:

```
10 POKE 45000,A :REM STORE THE VALUE
20 POKE 1,54 :REM SET POINTER TO RAM
30 A=PEED(45000) :REM GET THE VALUE
40 POKE 1,55 :REM RESTORE POINTER
50 END
```

This, though, amounts to sawing off the branch we're sitting on. The result is a lovely crash.

It's easy to see why. Line 20 tells the processor to look not at the BASIC interpreter in ROM, but the BASIC PEEK instruction, it can't be found, and the system hangs. If we change the pointer for Kernal ROM or for I/O, we also crash.

Machine Language Makes It Easy

But the extra memory is too tantalizing to pass up. Since we can't get at it properly from BASIC, we'll try machine language (ML). We'll use a BASIC loader for the routine, as in Program 1.

It works! We can now store data in the formerly unavailable area of masked RAM. The ML routine, which is only 14 bytes long, sets the appropriate pointer (bit 0 in this example) to ignore the ROM (here, the BASIC interpreter). It then puts the byte of data into a location normally accessible to BASIC (since location 251 is in unused zero page space, we chose that) and resets the pointer. A disassembly of the machine language for this routine is shown in Program 2.

Let's take a look at Program 1. Lines 100-120, 340, and 350 are not really part of our routine - lines 100 and 110 give us some data to use in illustration, and line 340 prints the data that the ML routine saved for us, just to prove it really worked The 4K of RAM beginning at location 49152 is unused, and since it is not contiguous with the BASIC area, it can't be overwritten by BASIC; so we've chosen to put our ML there. Line 130 sets location 49152 as the starting location for the machine language routine.

Lines 140, 160, 170, and 180 determine what value location 1 should contain, and put that value in BL. The numbers in the DATA statements (lines 190 and 200) are the bytes of ML (in decimal). Three of these are 0. The first (shown as 00 for prominence) will hold the block pointer, BL. The second and third, 000 and 0000, will hold the low-order and the high-order bytes, respectively, of the address of the target masked-RAM location.

Lines 210-240 POKE the ML into place. Line 250 inserts the value of the block pointer into byte 2 of the ML routine. Lines 260 and 270 calculate the high - and low - order bytes, respectively, of the target address; lines 280 and 290 POKE them into place. Line 300 disables interrupts so that the keyboard will not be scanned during execution of the machine language routine; this obviates the possibility of the system's hanging should the scan interrupt occur at the wrong moment.

The innocuous-looking line 310, the system call, signals the real action - here is where we branch out to perform our machine language routine. When the subroutine is finished, it returns control to BASIC. Now we can get our data whenever we need it: It has been left in location 251 for us.

Note that the ML could reside virtually anywhere - even in masked RAM. If it is placed within the normal BASIC area, of course, the appropriate BASIC pointers should be altered to protect it. From line 140 on, the routine is perfectly general and may be used to read the value stored at any RAM address within the range 0-65535, except for that lying beneath the I/O area (53248-57343). To see the underlying 4K of RAM in this area would require another technique, since there are three layers of memory here; our routine uncovers the second layer and lets us look at Character ROM directly. This could be useful in programs using custom-character routines, in order to restore portions of the ROM character table selectively.

Finally, we must note two things. First, this routine may be used to read memory locations in which either the BASIC program or the ML routine resides. However, we must not permit a POKE insstruction (for example, line 120) to alter the program unless we specifically wish to do so. Also, if we POKE to a location in the I/O area, we may drastically alter our output.

Program 1: ML Access To Hidden RAM

```
100 A=3{15 SPACES}:REM{2 SPACES}PUT DESIR
    ED DATA BYTE IN VARIABLE "A"
110 AD=45000{10 SPACES}:REM{2 SPACES}WE'L
    L SAVE "A" AT LOC. 45000 (IN MASKED R
    AM)
120 POKE AD,A{9 SPACES}:REM{2 SPACES}SAVE
     "A"
130 MS=49152{10 SPACES}:REM{2 SPACES}MACH
    INE CODE WILL BE LOADED STARTING AT L
    OC. 49152
140 IF 40959<AD AND AD<49152 THEN BL=54:
    {SPACE}GO TO 190
145 REM{21 SPACES}LOCATION 1 WILL CONTAIN
     BLOCK POINTER, BL
150 REM{21 SPACES}BL = 54 -- BASIC INTERP
    RETER ROM OUT
160 IF 53247<AD AND AD<57344 THEN BL=51:
    {SPACE}GO TO 190
165 REM{21 SPACES}BL = 51 -- I/O ROUTINES
     OUT
170 IF 57343<AD AND AD<=65535 THEN BL=53:
     GO TO 190
175 REM{21 SPACES}BL = 53 -- KERNAL ROM O
    UT
180 BL = 55{11 SPACES}:REM{2 SPACES}WITHI
    N NORMAL BASIC AREA
190 DATA 162,00,134,1 :REM{2 SPACES}MACHI
    NE LANGUAGE ROUTINE
200 DATA 174,000,0000,134,251,162,55,134,
    1,96
210 FOR I=0 TO 13{5 SPACES}:REM{2 SPACES}
    LOOP FOR BASIC LOADER
```

Using Data
Part 1

by Paul Blair

If you're fed up with typing in magazine programs and would like to do something for yourself, then tune in. Maybe if we give some help with the actual art/science of programming, you might be more inclined to have a try for yourself. So whether its shyness, lack of confidence or whatever, let's try to put that behind us, and make a start.

I plan to tackle two subjects that seem to cause some mild heartburn - DATA and strings. Strings comes later, it's DATA for now.

Let's start out with a few general programming tips. There are not many rules (other than the syntax rules imposed by Basic) about what you do when you want to take your first steps.

There seem to be two schools of thought about how you approach the task of writing programs. Both schools centre on the amount of preparatory work required before a sensible program can be created. The first school of thought espouses the highly structured approach - lay it all out on paper, and ensure a high level of program efficiency by not only writing good Basic, but locating it in the program in such a way that speed is optimized. Make the logic clear and highly visible to anyone reading the program.

The second school says "make it work", and let the chips (no pun intended) fall where they may. Basic is not very fast, so why worry about refined design?

I use both styles, depending on the job at hand. But there is a common thread running through both processes - do some thinking in advance.

I see you shrinking back already. Don't. Trust me. The whole plot is to make writing programs easier for you.

Paul's Golden Rule #1:

Think first - it will save YOU time!
Programming must be done carefully.
If you have even a broad idea of your objectives you can concentrate on the methods and programming becomes fun!!

This leads to the main theme of this tutorial:

Paul's Golden Rule #2:

If you plan to use data, and you arrange data in the right way, that arrangement can guide and control the rest of the program.

That may all sound a bit heavy, but be patient. Like all problems (if you like to think of programming as a problem solving task), work is always easier and fewer mistakes occur if the task is broken down into component parts.

What the hell is Data, anyway?

Data is fact. Jim is 10 years old. Tomorrow is Tuesday. The Warlord's name is Grunge. Grunge stands 180 cm tall. All facts. Givens, knowns, tangibles. Still facts.

Your program often needs data to help it do the things you want. You could always go through a series of questions at the start of every run:

```
INPUT"HOW TALL IS GRUNGE";HT
```

but if Grunge is always 180 cm tall, why not just put the fact in the program and save the effort?

Paul's Golden Rule #3

Break the problem into small parts that you can handle.
Identify any recurring patterns.
Use your imagination to take advantage of the patterns.

A Simple Example - The Calendar

The first example is to show you (at great length) how to format the date as May 14, 1985

First, we'll do it the hard way.

```
100 REM EXAMPLE 1A
110 PRINT CHR$(147)
120 INPUT "YEAR";Y:REM GET THE
    FACTS
130 INPUT "MONTH";M
140 INPUT "DAY";D
150 REM VALIDATE YEAR
160 IF Y<100 THEN Y=Y+1900: REM
    CHECK IF 2 OR 4 DIGITS TYPED
170 IF Y<1985 OR Y<>INT(Y) THEN450
180 REM VALIDATE MONTH
190 IF M<1 OR M>12 GOTO450: REM
    1-12 ONLY
200 IF M<>INT(M) GOTO450: REM NO
    FRACTIONS
210 REM VALIDATE D
220 IF D<1 OR D<>INT(D) GOTO450
230 IF (M=1 OR M=3 OR M=5 OR M=7
    OR M=8 OR M=10 OR M=12) AND
    D>31 GOTO450
240 IF M=2 AND Y/4 = INT(Y/4) AND
    D>29 GOTO450:REM LEAP YEAR
250 IF M=2 AND Y/4 <> INT(Y/4) AND
    D>28 GOTO450
260 IF (M=4 OR M=6 OR M=8 OR M=11)
    AND D>30 GOTO 450
270 REM NOW FORMAT DATE
280 IF M=1 THEN M$="JANUARY"
290 IF M=2 THEN M$="FEBRUARY"
300 IF M=3 THEN M$="MARCH"
310 IF M=4 THEN M$="APRIL"
320 IF M=5 THEN M$="MAY"
330 IF M=6 THEN M$="JUNE"
340 IF M=7 THEN M$="JULY"
350 IF M=8 THEN M$="AUGUST"
360 IF M=9 THEN M$="SEPTEMBER"
370 IF M=10 THEN M$="OCTOBER"
380 IF M=11 THEN M$="NOVEMBER"
390 IF M=12 THEN M$="DECEMBER"
```

```
400 D$=STR$(D)
410 Y$=STR$(Y)
420 REM NOW TO PRINT IT.
430 PRINT:PRINT"THE DATE IS ....
    "M$D$","Y$:END
440 :
450 PRINT:PRINT"INVALID. TRY
    AGAIN":PRINT:GOTO120
```

Not much style to that, but it does show the sort of checks that are required in a calendar entry program. Essentially, it worked, but it was tedious and redundant, it wasted time and space, and the tedium led to a bug! (Try Aug 31 & Sep 32 to see). But, worst of all, it was NO FUN at all to write.

We can't have that. You will put your computer in the bottom drawer and take up macrame or pigeon breeding or something, and be lost to us forever.

A Tool for Organizing Data

Paul's Golden Rule #4

There's always a better way.

If you don't believe that then the rest of this won't interest you. The rest of you, pay attention.

The 'Data' Statement in Basic

This is a non-executed statement, with two vital characteristics:

1 ... Content
2 ... Order

Content of Data Statements

DATA statements are easy to write. We type DATA, then type in variable values or strings, with a comma between each individual item. The RETURN at the end of line is the same as a comma, so don't put one there.

Here are some of the ways that valid DATA statements can be written:-

```
500 DATA ...        LINE # REQUIRED
510 DATA 500,-.03   NUMBERS
520 DATA C64        A STRING
530 DATA "123"      A STRING
  540 DATA 3,LI'L PIGS  NUMBER &
STRING
  550 DATA A,,,B,,    6 STRINGS
```

Maybe that last one caught you by surprise. Remember that the comma (or line end) is read as a delimiter between DATA items.

Incorrect 'Data' Statements

All the DATA statements given above were valid. Here are some containing errors:

```
800 DATA 5,3,SQR(8)  NO FUNCTIONS
810 DATA VICTORY!    NEEDS QUOTES
820 DATA A:,B:,C:    COLON ENDS IT
830 DATA J"CHR$(34)"  YUK!!
```

What does a 'Data' Statement Do?

Not much, I suppose, but it is nevertheless very useful.

1 ... Stores constants in your program
so you needn't read in a file.
2 ... Permits the program to assign
values to elements of arrays.
3 ... Encourages versatility.

How do you get at the Data?

With a 'READ' command

```
300 REM COST OF EGGS
310 DATA 2.45
... (rest of program....)
600 READ CE :REM COST OF EGGS
```

Of course, you must remember to READ in variables as variables, and strings as strings. If your DATA is a string, don't try and assign it as a variable representing the cost of eggs.

Let's see an example

This is the same program as the last, but using 'DATA' statements. The program loads values into two arrays, and is much smaller.

```
100 REM EXAMPLE 1B
110 PRINT CHR$(147)
120 :
130 DIM MN$(12) :REM MONTH NAMES
140 FOR I=1 TO 12: READ MN$(I): NEXT
150 DATA "JANUARY","FEBRUARY",
  "MARCH","APRIL","MAY","JUNE",
160 DATA "JULY","AUGUST",
  "SEPTEMBER","OCTOBER"
165 DATA "NOVEMBER","DECEMBER"
170 DIM MD(12) :REM # DAYS/MONTH
180 DATA 31,28,31,30,31,30
190 DATA 31,31,30,31,30,31
200 FOR I=1 TO 12: READ MD(I): NEXT
```

At this stage we have a list (or array) for the month names (MN$(1) is January and so on) and another list which holds the standard number of days in the same month (MD(1) is 31 - the number of days in January. The list positions coincide from list position 1 to 12. At this point, we have used up all the facts in the program, and it's time to find out what to do next.

```
210 INPUT "YEAR";Y: REM GET USER
  DATE
220 INPUT "MONTH";M
230 INPUT "DAY";D
240 REM VALIDATE YEAR
250 IF Y<100 THEN Y=Y+1900: REM
  THESE ARE UNCHANGED
260 IF Y<1985 OR Y<>INT(Y) GOTO410
270 REM VALIDATE MONTH
280 IF M<1 OR M>12 GOTO410
290 IF M<>INT(M) GOTO410
300 REM VALIDATE D
310 IF D<1 OR D <> INT(D) GOTO410
320 IF Y/4 = INT(Y/4) THEN MD(2)=29
330 IF D>MD(M) GOTO410
340 REM NOW TO FORMAT THE DATE
350 M$=MN$(M): REM READ FROM LIST
360 D$=STR$(D)
370 Y$=STR$(Y)
380 REM NOW PRINT IT
390 PRINT:PRINT"THE DATE IS ....
  "M$D$","Y$:END
400 :
410 PRINT:PRINT"INVALID. TRY AGAIN"
  :PRINT:GOTO120
```

Reviewing example 1B

It worked, but the bug in line 150 was very poorly diagnosed by BASIC! (You didn't spot it? Look again...).

Because of an extra value in line 150, line 200 encountered 'December' when it tried to 'READ' the number of days in

January from line 190. The error message pointed to line 160, which was OK.

How do you detect such errors?

1 ... During testing, include a line like this in your program:

```
103 DEBUG=1:REM 1 DURING TESTING, CHANGE TO 0 WHEN OK
```

2 ... Make your 'READ' statements tell you what they are doing:

```
500 READ XY:IF DEBUG=1 THEN PRINT XY
```

This will let you see XY as it is read. When all is well, and you are happy with the program, set DEBUG=0 (leave line 500 as it is in case you need it again).

Data and simple variables

This is nearly trivial. Anyway, there's little difference between the following two methods:

```
1500 DATA 7.5
1510 READ PK : REM PARAMETER #1
```

or....

```
2020 PK = 7.5: REM PARAMETER #1
```

Lines 150-1510 point out one minor drawback - well, it is if you plan on using masses of data.

The drawback is that DATA statements read into, say, an array, use two lots of computer memory storage. The first is the DATA line itself, and the second is when the data is read and stored.. in this case, as variable PK. By and large, this should never worry you, but it's better that I warn you just in case.

Data and arrays

Here we start to see the grace of the DATA statement. In just three lines, we can define an array and its values.

```
3300 DATA SUN,MON,TUE,WED,
THU,FRI,SAT
4000 DIM W$(7)
4010 FOR X=1 TO 7 : READ W$(X) :
NEXT
```

Delimiting the arrays

Here are three ways to indicate how many entries are to be read.

1 ... (best) Precede with the count:

```
600 DATA 3,YOU,ME,THEM
```

2 ... Know how many values there are:

```
430 DATA UP,DOWN,LEFT,RIGHT
```

3 ... Have a phony value at the end:

```
700 DATA YELLOW,BRICK,ROAD,*
```

Delimiting with Preceding Count

This is the recommended way, because:

1 ... It's easiest to change
2 ... Simple readable code results
3 ... It's very easy to document

```
140 DATA 5 : REM HOW MANY DAYS
150 DATA MON,TUE,WED,THU,FRI
.....
300 READ DN : DIM DN$(DN)
310 FOR T = 1 TO DN
320 READ DN$(T) : NEXT
```

Delimiting with a phony at the end

This is slow and inelegant, because:

1 ... How do you know the dimension?
2 ... Every value must be tested (IF.....)
3 ... 'Unstructured' code results

```
140 DATA 22,234,55,55,236,177,
    90,41,60,3,96
150 DATA -1:REM END OF DATA
300 AD = 840
310 READ C : IF C <0 GOTO 340:REM
    TIMEWASTER
320 POKE AD,C : AD = AD+1:REM AND
    MORE
330 GOTO 310
340 ... (program continues.)
```

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POWER CARTRIDGE®

A special KCS switching technique allows a program to be stored completely outside the memory of your Commodore 64/128. Using this system KCS developed the POWER CARTRIDGE. The 16K Cartridge, 100% machine code, gives the user an optimal extension to his normal computer.

POWER TOOLKIT

A powerful BASIC-Toolkit (Additional helpful commands) that considerably simplifies programming and debugging.

AUTO	HARDCAT	RENUMBER
AUDIO	HARDCOPY	REPEAT
COLOR	HEX$	SAFE
DEEK	INFO	TRACE
DELETE	KEY	UNNEW
DOKE	PAUSE	QUIT
DUMP	PLIST	MONITOR
FIND	ILOAD	BLOAD

RENUMBER : *Also modifies all the GOTO's GOSUB's etc. Allows part of a programme to be renumbered or displaced.*
PSET : *Set up of printer type.*
HARDCAT : *Prints out Directory.*

The toolkit commands can be used in your programmes.

DISK TOOL

Using POWER CARTRIDGE you can load up to 6 times faster from disk.
The Disk-commands can be used in your own programmes.

DLOAD	DVERIFY	DIR
DSAVE	MERGE	DEVICE
DISK		

MERGE : *Two BASIC programmes can be merged into one.*
DISK : *With DISK you can send commands directly to your disk.*

TAPE TOOL

Using POWER CARTRIDGE you can work up to 10 times faster with your data recorder. The Tape commands can be used in your own programmes.

LOAD	SAVE	VERIFY
MERGE	AUDIO	

POWERMON

A surprisingly powerful machine language monitor that is readily available and leaves all of your Commodore memory available for programming. Also works in BASIC-ROM, KERNAL and I/O areas.

A ASSEMBLE	I INTERPRET	S SAVE
C COMPARE	J JUMP	T TRANSFER
D DIS-ASSEMBLE	L LOAD	V VERIFY
	M MEMORY	W WALK
F FILL	P PRINT	X EXIT
G GO	R REGISTER	$ DIRECTORY DOS Commands
H HUNT		

PRINTERTOOL

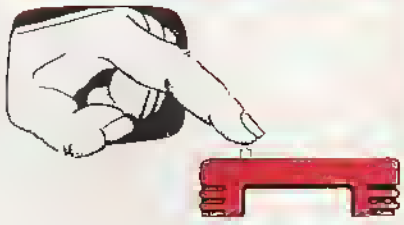
The POWER CARTRIDGE contains a very effective Printer-Interface, that self detects if a printer is connected to the Serial Bus or User-Port.
It will print all Commodore characters on Epson and compatible printers.
The printer-interface has a variety of set-up possibilities. It can produce HARDCOPY of screens not only on Serial printers (MPS801, 802, 803 etc) but also on Centronic printers (EPSON, STAR. CITIZEN, PANASONIC, etc).
The HARDCOPY function automatically distingulshs between HIRES and LORES. Multi-colour graphics are converted Into grades of grey. The PSET functions allow you to decide on Large/Small and Normal/Inverse printing.
The printer PSET functions are:

PSET 0 - *Seli detection Serial/Centronics.*
PSET 1 - *EPSON mode only.*
PSET 2 - *SMITH-CORONA mode only.*
PSET 3 - *Turns the printing 90 degrees!!*
PSET 4 - *HARDCOPY setting for MPS802/1526.*

PSET B - *Bit-image mode.*
PSET C - *Setting lower/Upper case and sending Control Codes.*
PSET T - *All characters are printed in an unmodified state.*
PSET U - *Runs a Serial printer and leaves the User-port available.*
PSET Sx - *Sets the Secondary address for HARDCOPY with Serical Bus.*

PSET L1 - *Adds a line-feed, CHR$ (10), after every line.*
PSET L0 - *Switches PSET L1 off.*

POWER RESET



On the back of the POWER CARTRIDGE there is a Reset Button. Pressing this button makes a SPECIAL MENU appear on the screen.
This function will work with any programme.

CONTINU	- *Allows you to return to your program.*
BASIC	- *Return to BASIC.*
RESET	- *Normal RESET.*
TOTAL BACKUP DISK	- *Saves the contents of the memory onto a Disk. The programme can be reloaded later with BLOAD followed by CONTINUE.*
RESET ALL	- *RESET of any programme.*
TOTAL BACKUP TAPE	- *As BACKUP DISK but to TAPE.*
HARDCOPY	- *At any moment, prints out a Hardcopy of the screen. Using CONTINUE afterwards you can return to the program.*
MONITOR	- *Takes you into the Machine language Monitor.*

...it's dynamite!

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